Operator & Safety Manual

Keep this manual with machine at all times.

Models
3507, 3508
3509, 3512
3513, 4007
4008, 4009
4012, 4013

3121851

Revised
September 8, 2006

CE

NQA ISO9001 REGISTERED COMPANY
UKAS QUALITY MANAGEMENT 015

REVISION LOG

May 1, 2002 - A - Original Issue of Manual

May 15, 2002 - B - Revised Manual

November 18, 2005 - C - Revised Manual

September 8, 2006 - D - Revised pages 2-2, 2-3, 2-15, 4-9, 4-10, 4-11, 4-13, 4-15, 8-2, 8-5 & 8-6.

This manual is a very important tool! Keep it with the machine at all times.

The purpose of this manual is to provide owners, users, operators, lessors, and lessees with the precautions and operating procedures essential for the safe and proper machine operation for its intended purpose.

Due to continuous product improvements, JLG Industries, Inc. reserves the right to make specification changes without prior notification. Contact JLG Industries, Inc. for updated information.

Operator Qualifications

The operator of the machine must not operate the machine until this manual has been read, training is accomplished and operation of the machine has been completed under the supervision of an experienced and qualified operator. Operation within the U.S.A. requires training per OSHA 1910.178.

Operators of this equipment must possess a valid, applicable driver's license, be in good physical and mental condition, have normal reflexes and reaction time, good vision and depth perception and normal hearing. Operator must not be using medication which could impair abilities nor be under the influence of alcohol or any other intoxicant during the work shift.

In addition, the operator must read, understand and comply with instructions contained in the following material furnished with the telehandler:

- This Operator & Safety Manual
- Telehandler Safety Manual
- All instructional decals and plates
- Any optional equipment instructions furnished

The operator must also read, understand and comply with all applicable Employer, Industry and Governmental rules, standards and regulations.

Modifications

Any modification to this machine must be approved by JLG.

This product must comply with all safety related bulletins. Contact JLG Industries, Inc. or the local authorized JLG representative for information regarding safety-related bulletins which may have been issued for this product.

JLG Industries, Inc. sends safety related bulletins to the owner of record of this machine. Contact JLG Industries, Inc. to ensure that the current owner records are updated and accurate.

JLG Industries, Inc. must be notified immediately in all instances where JLG products have been involved in an accident involving bodily injury or death of personnel or when damage has occurred to personal property or the JLG product.

FOR:

- Accident Reporting and Product Safety Publications
- Current Owner Updates
- Questions Regarding Product Applications and Safety
- Standards and Regulations Compliance Information
- Questions Regarding Product Modifications

CONTACT:

Product Safety and Reliability Department
JLG Industries, Inc.
1 JLG Drive
McConnellsburg, PA 17233
USA

or Your Local JLG Office
(Addresses on back cover)

In USA:
Toll Free: 877-JLG-SAFE (877-554-7233)

Outside USA:
Phone: 717-485-5161
E-mail: ProductSafety@JLG.com

Other Publications Available

Service Manual 3121852

Illustrated Parts Manual..... 3121853

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TABLE OF CONTENTS

Revision Log

Read This First

Operator Qualifications ..... b
Modifications ..... b
Other Publications Available c

Table of Contents

Section 1 - General Safety Practices

1.1 General Precautions 1-1
1.2 Hazard Classification System 1-1
Safety Alert System and Safety Signal Words 1-1
1.3 Operation Safety 1-2
Electrical Hazards 1-2
Tip Over Hazard 1-3
Travel Hazard 1-6
Load Falling Hazard 1-7
Lifting Personnel 1-8
Driving Hazards on Slopes 1-10
Pinch Points and Crush Hazards 1-11
Fall Hazard 1-13
Chemical Hazards 1-14

Section 2 - Pre-Operation and Controls

2.1 Pre-Operation Checks and Inspection 2-1
Walk-Around Inspection 2-2
2.2 Safety Decals 2-4
2.3 Operator Cab 2-7
2.4 Controls 2-8
Instrument Panel 2-10
Display Screen 2-12
Anti Theft Device 2-15
Ignition 2-16
Park Brake 2-17
Parking Procedure 2-17
Transmission Control 2-18
Wiper, Lights and Turn Signal Control Lever 2-20
Steering Column Adjuster 2-21
Joystick 2-22
Load Moment Indicator (LMI) 2-26
Control and Indicator Console 2-27
Heater and Air Conditioner (optional) Controls 2-28

2.5 Steer Modes 2-29
2.6 Operator Seat 2-30
Adjustments 2-30
Seat Belt 2-31
2.7 Mirrors and Windows 2-32
Cab Door Window 2-32
Rear Window 2-32
Mirrors 2-33
2.8 Hood 2-34

Section 3 - Operation

3.1 Warm-Up and Operational Checks 3-1
3.2 Engine 3-2
Starting the Engine 3-2
Battery Boosted Starting 3-3
Normal Engine Operation 3-4
Shut-Down Procedure 3-4
3.3 Operating with a Load 3-5
Lift Load Safely 3-5
Before Picking Up a Load 3-5
Transporting the Load 3-6
Leveling Procedure 3-6
Placing the Load 3-7
Disengaging the Load 3-7
3.4 Road Operation 3-8
3.5 Loading and Securing for Transport 3-9

Section 4 - Attachments and Hitch Options

4.1 Approved Attachments 4-1
4.2 Unapproved Attachments 4-1
4.3 Telehandler/Attachment/Fork Capacity 4-2
4.4 Use of the Capacity Chart 4-3
Capacity Indicator Locations 4-3
Sample Capacity Chart 4-4
Example 4-6
4.5 Attachment Installation 4-7
Mechanical Quick-Switch Device 4-8
Hydraulic Quick-Switch Device 4-9
Hydraulic Operated Attachment 4-10
4.6 Adjusting/Moving Forks 4-11

4.7 Attachment Operation 4-11
Carriage w/Forks 4-12
Truss Boom 4-13
Side Shift Carriage 4-14
Bucket 4-16
Fork Extension 4-18
Fork Hook 4-20
Adjustable Truss Boom 4-21
4.8 Hitch Options 4-22
Mechanical Hitch 4-22
Hydraulic Hitch 4-23

Section 5 - Emergency Procedures

5.1 Towing a Disabled Product 5-1
Moving Short Distances 5-1
Moving Longer Distances 5-1
5.2 Emergency Lowering of Boom 5-2
Electronic Control Unit Failure 5-3
Engine Failure 5-4
5.3 Cab Emergency Exit 5-6

Section 6 - Lubrication and Maintenance

6.1 Introduction 6-1
Clothing and Safety Gear 6-1
6.2 General Maintenance Instructions 6-2
6.3 Service and Maintenance Schedules 6-3
8 & 1st 50 Hour Maintenance Schedule 6-3
50, 250 & 500 Hour Maintenance Schedule 6-4
1000 & 1500 Hour Maintenance Schedule 6-5
6.4 Lubrication Schedules 6-6
8 Hour Lubrication Schedule 6-6
50 Hour Lubrication Schedule 6-7
6.5 Operator Maintenance Instructions 6-8
Fuel System 6-8
Air Intake System 6-10
Engine Oil 6-12
Brake System 6-13
Hydraulic Oil 6-14
Tires 6-15
Transmission Oil 6-16
Engine Cooling System 6-17
Battery 6-18

Section 7 - Additional Checks

7.1 Load Moment Indicator Test 7-1

Section 8 - Specifications

8.1 Product Specifications 8-1

Fluid and Lubrication Capacities 8-1

Tires 8-2

Performance 8-3

Dimensions 8-5

Noise Emission Level 8-6

Telehandler Vibration 8-6

Index

SECTION 1 - GENERAL SAFETY PRACTICES

1.1 GENERAL PRECAUTIONS

⚠ WARNING

Before operation, read & understand this manual. Failure to comply with the safety precautions listed in this manual could result in machine damage, property damage, personal injury or death.

1.2 HAZARD CLASSIFICATION SYSTEM

Safety Alert System and Safety Signal Words

OW0010

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

OW0020

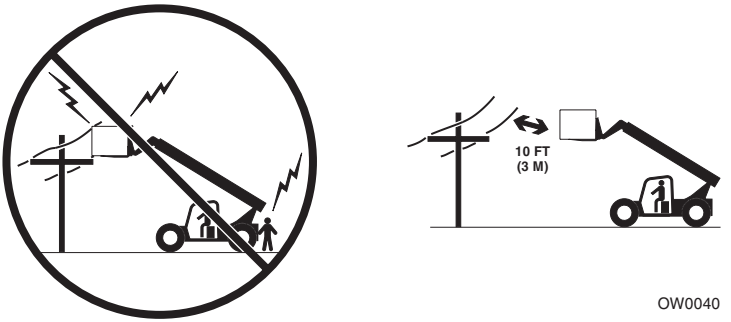
WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

OW0030

CAUTION indicates a potentiality hazardous situation which, if not avoided, may result in minor or moderate injury.

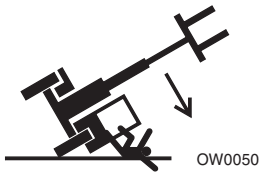
1.3 OPERATION SAFETY

Electrical Hazards

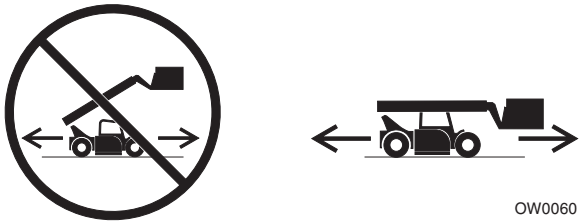


- This machine is not insulated and does not provide protection from contact or being near electrical current.
- **NEVER** operate the telehandler in an area where overhead power lines, overhead or underground cables, or other power sources may exist without ensuring the appropriate power or utility company de-energizes the lines.
- Always check for power lines before raising the boom.

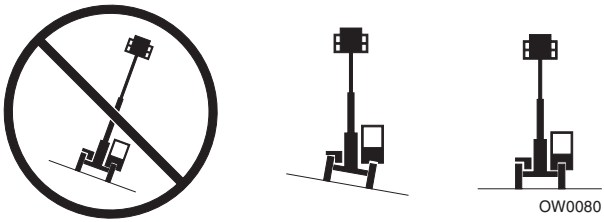
Tip Over Hazard



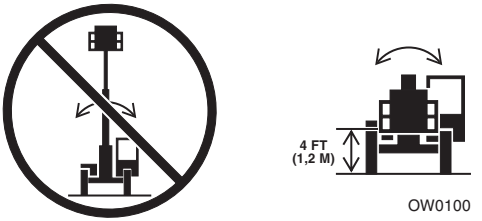
- Never use an attachment without the appropriate JLG supplied capacity chart installed on the telehandler.
- **DO NOT** exceed rated lift capacity.
- Be sure that the ground conditions are able to support the machine.



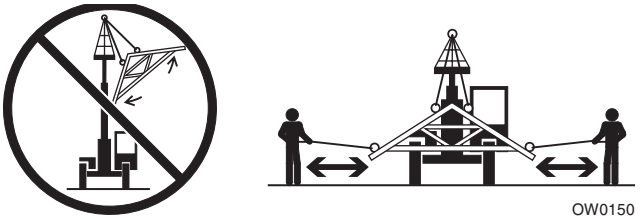
- **DO NOT** drive with boom raised.
- When driving in high speed, use only front wheel steer (if steering modes are selectable).



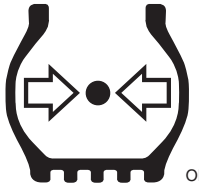
- **DO NOT** raise boom unless frame is level (0 degrees).



- **DO NOT** level machine with boom/attachment above 1,2 m (4 ft).



- Carry load as low as possible. Tether suspended loads to restrict movement.
- Understand how to properly use the capacity charts located in cab (see page 4-3).
- Weight of all rigging (slings, etc.) must be included as part of load.
- Start, travel, turn and stop slowly to prevent load from swinging.
- Beware of wind. Wind can cause a suspended load to swing and cause dangerous side loads - even with tag lines.
- **DO NOT** attempt to use telehandler frame-leveling to compensate for load swing.
- Keep heavy part of load closest to attachment.
- Never drag the load; lift vertically.


OH2291

- **MAINTAIN proper tire pressure** at all times. If proper tire pressures are not maintained, this machine could tip over.
- Refer to manufacturer's specifications for proper fill ratio and pressure requirements for tires equipped with ballast.

OH20911

- Always wear the seat belt.
- Keep head, arms, hands, legs and all other body parts inside operator's cab at all times.

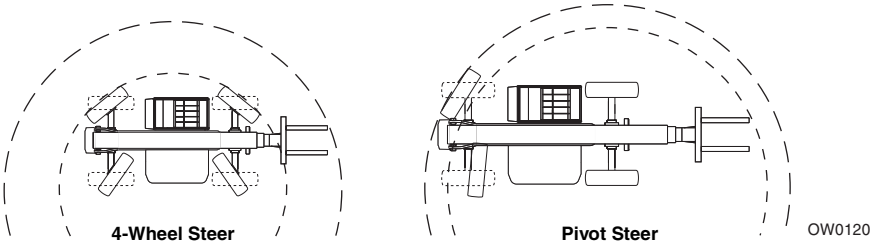
OH2221

If the telehandler starts to tip over:

- **DO NOT** JUMP
- BRACE YOURSELF and STAY WITH THE MACHINE
- KEEP YOUR SEAT BELT FASTENED
- HOLD ON FIRMLY
- LEAN AWAY FROM THE POINT OF IMPACT

Trying to escape from a tipping machine could result in death or serious injury.

Travel Hazard



- Steering characteristics differ between 4-Wheel Steer & Pivot Steer telehandlers as shown above. Identify the telehandler you are operating & others on the jobsite.
- Ensure that adequate clearance is provided between both rear tail swing and front fork swing.
- Unlike a conventional 4-wheel steer telehandler the rear wheels of a pivot steer telehandler turn a wider circle than the front wheels.

- **Look out for and avoid other personnel, machinery and vehicles in the area. Use a spotter if you DO NOT have a clear view.**
- **Before moving be sure of a clear path and sound horn.**
- **When driving, retract boom and keep boom/attachment as low as possible while maintaining visibility of mirrors and maximum visibility of path of travel.**
- **Always look in the direction of travel.**
- **Always check boom clearances carefully before driving underneath overhead obstructions. Position attachment/load to clear obstacles.**

Load Falling Hazard

OW0130

- Never suspend load from forks or other parts of carriage.
- **DO NOT** burn or drill holes in fork(s).
- Forks must be centered under load and spaced apart as far as possible.

Lifting Personnel

OW0170

- When lifting personnel, **USE ONLY** a JLG manufactured personnel work platform, with proper capacity chart displayed in the cab.

OW0190

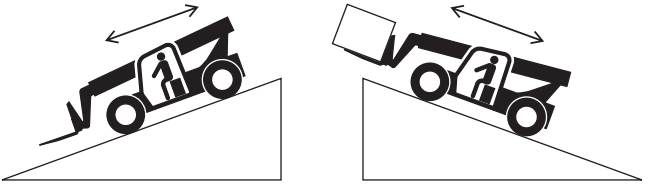
- **DO NOT** drive machine from cab when personnel are in platform.
- **DO NOT** use the personnel work platform until you study & understand the “capacity chart.” If your telehandler does not have the correct “personnel work platform capacity chart,” ask your supervisor to get one before using the attachment.

Preparation and Setup

1. Ensure the telehandler is on a firm surface and is level.
2. Engage the park brake. Blocking the wheels is also recommended.
3. Level the platform, both side to side (frame sway) and front to back (attachment tilt).
4. Keep area under the platform free from personnel.
5. **DO NOT** lift or carry persons in the bucket or on forks.

Never tilt the platform forward, rearward, or sway the machine when the platform is occupied. Serious injury or death could result.

Driving Hazards on Slopes



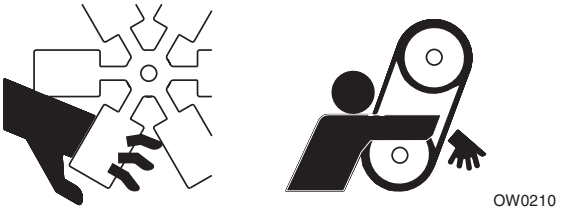
To maintain sufficient traction and braking capabilities, travel on slopes as follows:

1. When unloaded, the rear of the machine is the “heavy end.” Drive with forks pointed downhill.
2. When loaded, the front of the machine is the “heavy end.” Drive with the forks pointed uphill.

- To avoid overspeeding the engine and drivetrain when driving down slopes, downshift to a lower gear and use the service brake as necessary to maintain a slow speed. **DO NOT shift into neutral and coast downhill**.
- Avoid excessively steep slopes or unstable surfaces. To avoid tip over **DO NOT** drive across excessively steep slopes under *any* circumstances.
- Avoid turning on a slope. Never engage “inching” or shift to “Neutral” when going downhill.
- **DO NOT** park on a slope.

Pinch Points and Crush Hazards

Stay clear of pinch points and rotating parts on the telehandler.



OW0210

- Stay clear of moving parts while engine is running.

OW0220

- Keep clear of steering tires and frame or other objects.

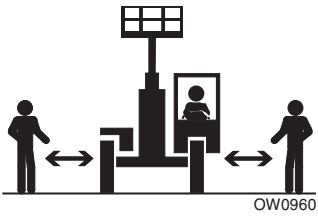
OW0230

- Keep clear from under boom.

- Keep clear of boom holes.

- Keep arms and hands clear of attachment tilt cylinder.

- Keep hands and fingers clear of carriage and forks.



- Keep others away while operating.

Fall Hazard

OW0280

- Enter using the proper hand holds and steps provided. Always maintain 3-point contact when mounting or dismounting. Never grab control levers or steering wheel when mounting or dismounting the machine.
- **DO NOT** get off the machine until the shutdown procedure on page 3-4 has been performed.

OW0290

- **DO NOT** carry riders. Riders could fall off machine causing death or serious injury.

Chemical Hazards

Exhaust Fumes

- **DO NOT** operate machine in an enclosed area without proper ventilation.
- **DO NOT** operate the machine in hazardous environments unless approved for that purpose by JLG and site owner. Sparks from the electrical system and the engine exhaust can cause an explosion.

Flammable Fuel

OW0300

- **DO NOT** fill the fuel tank or service the fuel system near an open flame, sparks or smoking materials. Engine fuel is flammable and can cause a fire and/or explosion.

Hydraulic Fluid

OW0950

- **DO NOT** attempt to repair or tighten any hydraulic hoses or fittings while the engine is running or when the hydraulic system is under pressure.
- Stop engine and relieve trapped pressure. Fluid in the hydraulic system is under enough pressure that it can penetrate the skin.
- **DO NOT** use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Wear gloves to protect hands from spraying fluid.

SECTION 2 - PRE-OPERATION AND CONTROLS

2.1 PRE-OPERATION CHECKS AND INSPECTION

Note: *Complete all required maintenance before operating unit.*

⚠ WARNING

FALL HAZARD. Use extreme caution when checking items beyond your normal reach. Use an approved ladder. Failure to comply could result in death or serious injury.

Walk around inspection must be performed at beginning of each work shift or at each change of operator.

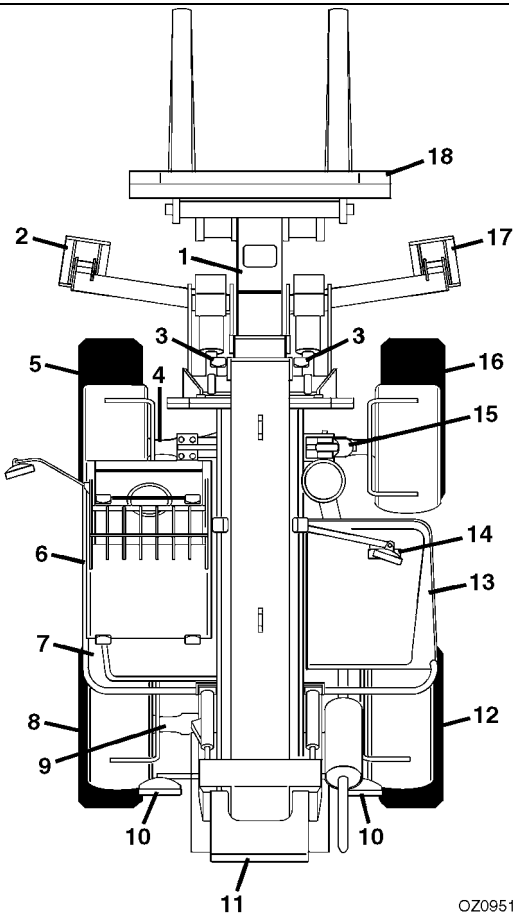
Ensure all Safety decals are legible and in place. Clean or replace as required. See *"Safety Decals"* on page 2-4.

Before removing filler caps or fill plugs, wipe all dirt and grease away from the ports. If dirt enters these ports, it can severely reduce component life.

If spark arrestors are required, be sure they are in place and in good working order.

When adding fluids, refer to lubrication section of this manual to determine proper type and intervals.

Walk-Around Inspection



Begin your walk-around inspection at item 1. Continue to your right (counterclockwise when viewed from top) checking each item in sequence.

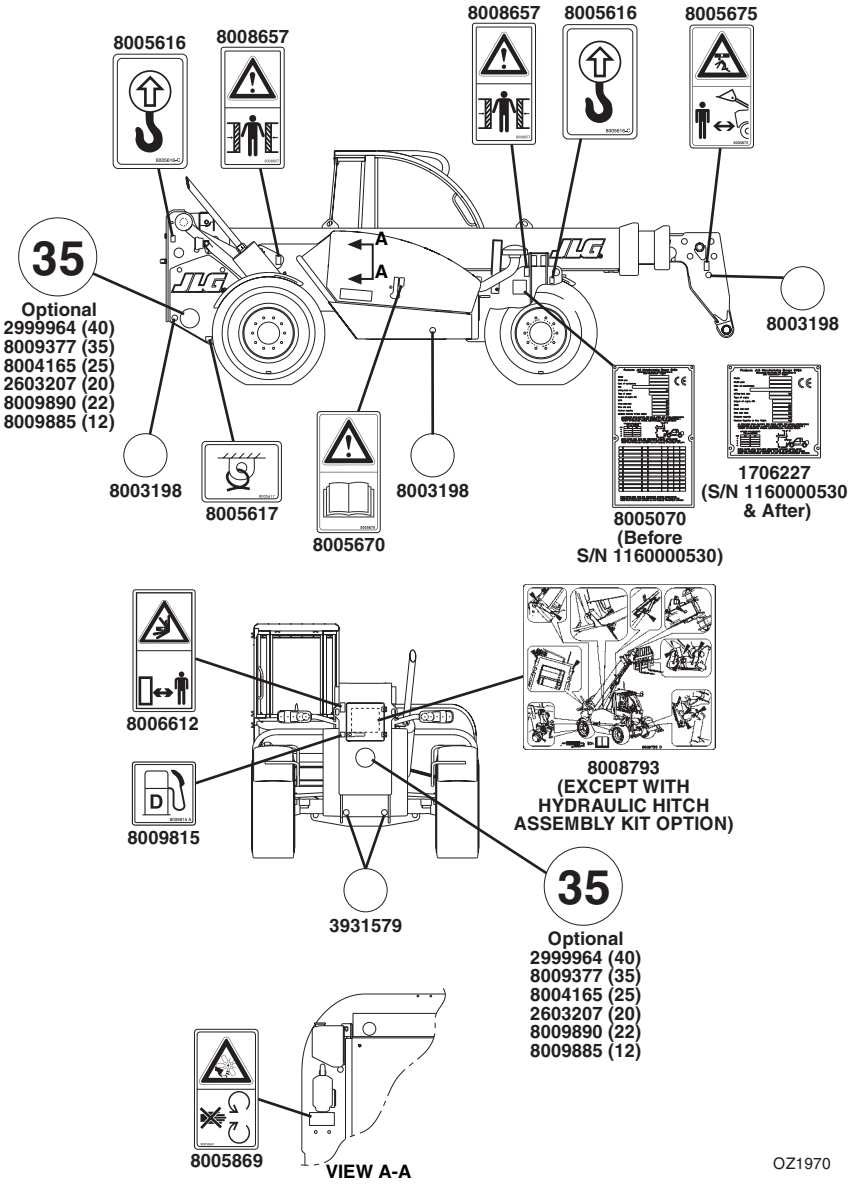
INSPECTION NOTE: On all components, make sure there are no loose or missing parts, that they are securely fastened and no visible leaks or excessive wear exists in addition to any other criteria mentioned. Inspect all structural members including attachment for cracks, excessive corrosion and other damage.

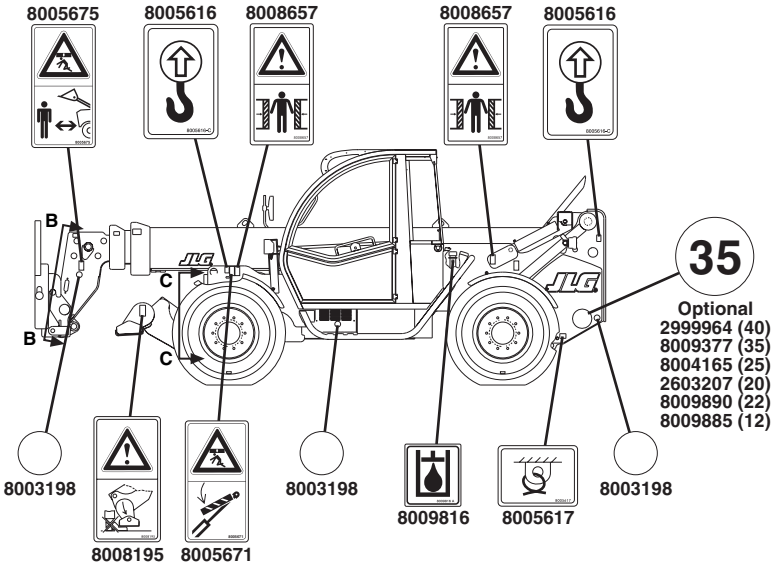
1. Boom Sections & Lift, Tilt, Extend/Retract, Compensating (Slave) Cylinders -
   - Check front, top, side & rear slider pads for adequate grease.
   - Pivot pins secure; hydraulic hoses undamaged, not leaking.
2. Left Outrigger (12 & 13M)- Pins secure; hydraulic hoses & cylinder undamaged, not leaking.
3. Front Work Lights - Clean, undamaged and work properly.

4. Front Axle - Steer cylinders undamaged, not leaking; pivot pins secure; hydraulic hoses undamaged, not leaking.
5. Wheel/Tire Assembly - No loose or missing lug nuts; proper inflation.
6. Cab & Electrical -
   - General appearance; no visible damage; proper load charts and applicable Operator & Safety manual located in cab.
   - Window glass undamaged and clean.
   - Gauges, switches, joystick, foot controls, park brake & horn operational.
   - Check seat belt for damage, replace belt if frayed or cut webbing, damaged buckles or loose mounting hardware.
   - Check brake fluid level, refill as required.
7. Hydraulic Reservoir - Recommended fluid level on sight gauge (lubricant must be cool); filler/breather cap secure and working.
8. Wheel/Tire Assembly - No loose or missing lug nuts; proper inflation.
9. Rear Axle - Steer cylinders undamaged, not leaking; pivot pins secure; hydraulic hoses undamaged, not leaking.
10. Rear Work Lights- Clean, undamaged and work properly.
11. Fuel Tank - Check fluid level, refill as required; filler cap is securely fastened.
12. Wheel/Tire Assembly - No loose or missing lug nuts; proper inflation.
13. Engine Compartment -
    - Engine Crankcase and Radiator, check levels & refill as required.
    - Drive belts, check condition & replace as required.
    - Air cleaner element condition indicator, check for clogged condition. Replace element as required.
    - Check and clean pre-cleaner as required.
    - Main control valve, see inspection note.
    - Battery cables tight, no visible damage or corrosion.
    - Engine cover properly secured and latched.
14. Mirrors - Clean, undamaged and work properly.
15. Wheel/Tire Assembly - No loose or missing lug nuts; proper inflation.
16. Sway Cylinder - Pins secure; hydraulic hoses undamaged, not leaking.
17. Right Outrigger (12 & 13M)- Pins secure; hydraulic hoses & cylinder undamaged, not leaking.
18. Attachment - Properly installed, see *"Attachment Installation"* on page 4-7.

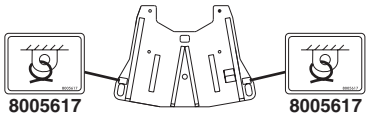
2.2 SAFETY DECALS

Ensure all **DANGER**, **WARNING**, **CAUTION** and instructional decals and proper capacity charts are legible and in place. Clean and replace as required.



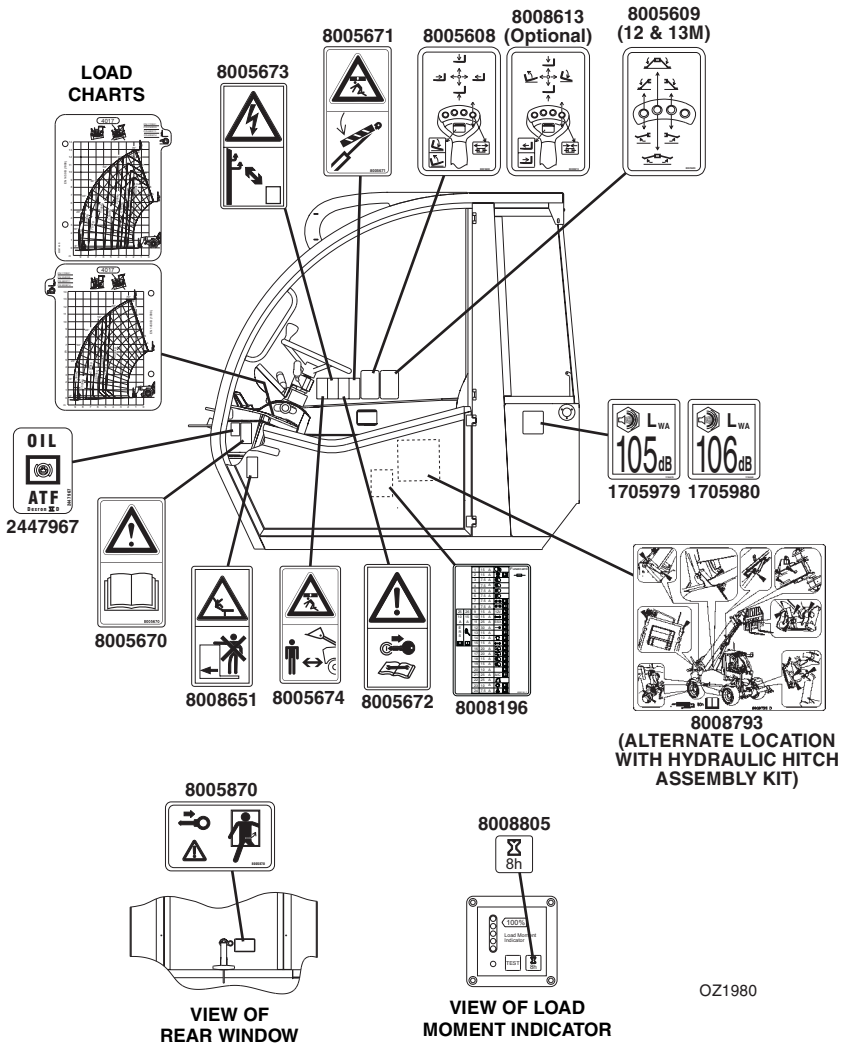


VIEW B-B



VIEW C-C

OZ1990


LOAD CHARTS
8005673
8005671
8005608
8008613 (Optional)
8005609 (12 & 13M)
OIL
ATF
2447967
105dB
106dB
1705979
1705980
8005670
8008651
8005674
8005672
8008196
8008793 (ALTERNATE LOCATION WITH HYDRAULIC HITCH ASSEMBLY KIT)
8005870
VIEW OF REAR WINDOW
8008805
8h
VIEW OF LOAD MOMENT INDICATOR
OZ1980

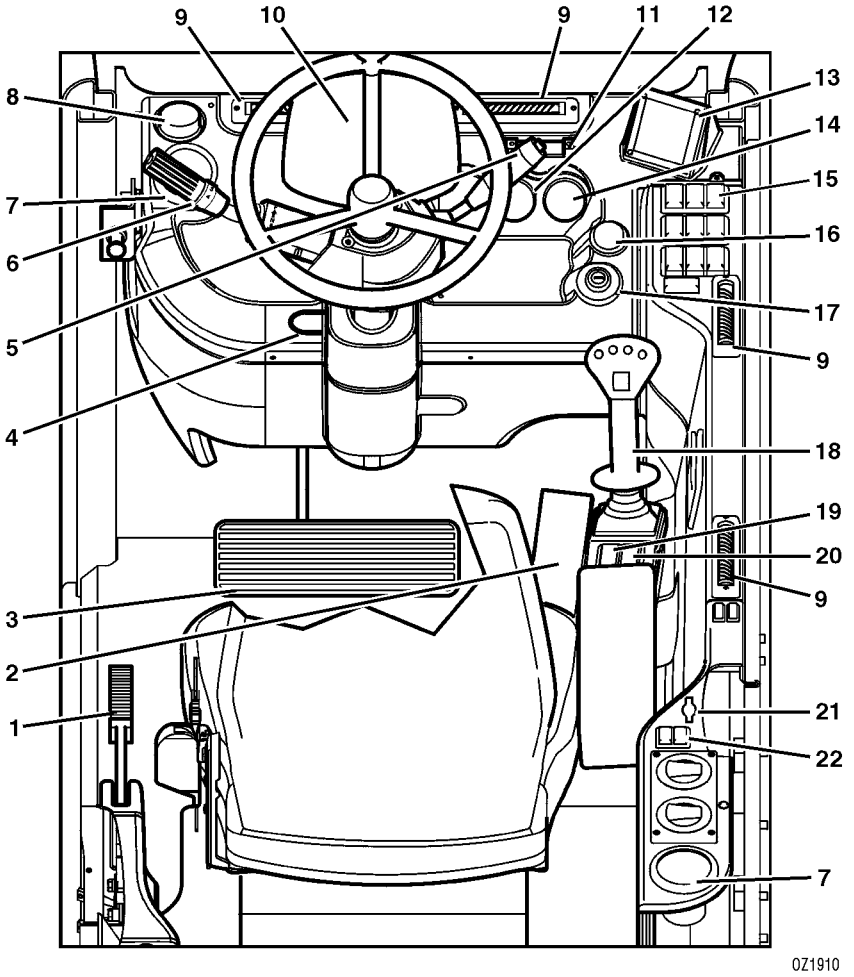
2.3 OPERATOR CAB

The telehandler is equipped with an enclosed ROPS/FOPS cab.

⚠ WARNING

Never operate telehandler unless the overhead guard and cab structure are in good condition. Any modification to this machine must be approved by JLG to assure compliance with ROPS/FOPS certification for this cab/machine configuration. If damaged, the **CAB CANNOT BE REPAIRED**. It must be **REPLACED**.

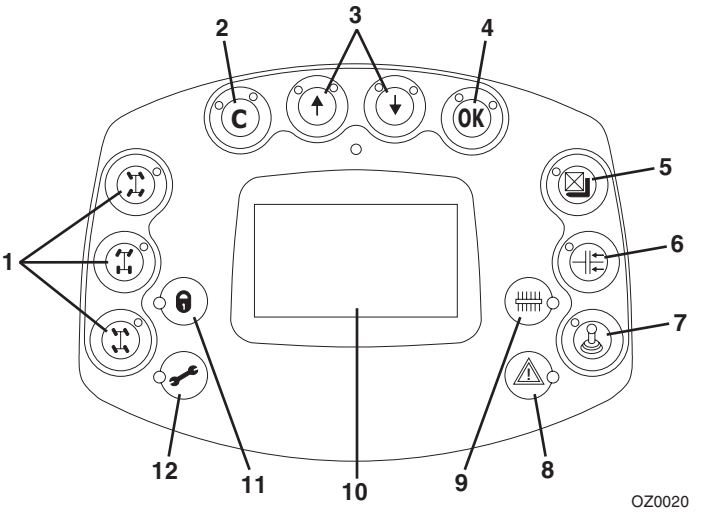
2.4 CONTROLS



1. Parking Brake: See page 2-17 for details.
2. Accelerator Pedal: Pressing down the pedal increase engine and hydraulic speed.
3. Service Brake Pedal: The further the pedal is depressed, the slower the travel speed.
4. Steering Column Adjuster: See page 2-21 for details.
5. Wipers, Lights, Turn Signal Lever: See page 2-20 for details.
6. Transmission Control Lever: See page 2-18 for details.

7. Round Air Vents: Three individually adjustable round vents.
8. Brake Fluid Reservoir: The brake fluid level should be between the MIN and MAX marks. The sight gauge is on the left side of the reservoir.
9. Air Louvers: Four individually adjustable air louvers.
10. Instrument Panel: Controls and indicates some machine functions and displays the output of the machine. See page 2-10 for details.
11. Level Indicator: Enables the operator to determine the left to right level condition of the telehandler.
12. Fuel Gauge: Gauge for the diesel fuel tank.
13. Load Moment Indicator: See page 2-26 for details.
14. Engine Temperature Gauge: At high working load do not exceed the critical coolant temperature of 102°C (221°F). Stop immediately and allow the engine to run at idle in order to cool. (See engine manual.)
15. Control & Indicator Console: See page 2-27 for details.
16. Hazard Flashers: Press button to activate, press button to deactivate.
17. Ignition: Key activated. See page 2-16 for details.
18. Joystick: See page 2-22 for details.
19. Continuous Hydraulic Powered Attachment Operation Button: Press button for continuous operation of hydraulic powered attachment. See Section 4 - Attachments and Hitch Options for approved attachments and control instructions.
20. Auxiliary Hydraulic Circuit/Hydraulic Quick-Switch Button: Press button to select the desired auxiliary hydraulic circuit. See Section 4 - Attachments and Hitch Options for approved attachments and control instructions.
21. 12 V Receptacle: Supplies power for service laptop, light, etc.
22. Heater and Air Conditioner Controls: See page 2-28 for details.

Instrument Panel



1. **Steer Mode Selection**
   LED lit while activated. Blinks during change to another steer mode. See page 2-29 for details.
2. **C Key**
   Returns user interface one level during navigation and deletes user inputs.
3. **Up/Down Arrows**
   Scroll up and down in the user interface.
4. **OK Key**
   Confirms user interface inputs.
5. **Overload Protection Override**
   When the button is activated the LED lights and the buzzer sounds. The automatic overload protection function (see page 2-26) is disabled. Push button or cycle ignition switch to re-enable function.

WARNING

TIP OVER HAZARD. Exceeding lift capacity of the telehandler could damage the equipment and/or cause tip over resulting in death or serious injury.

6. **Declutch Shutoff**
   With the LED not lit, the transmission is in neutral and all power is routed to the hydraulic system when the service brake is depressed. Function is deactivated when LED is lit.

7. **Road Use Operation**
   LED lit while activated: The outrigger, boom, sway and auxiliary hydraulic systems are disengaged. No functions can be operated with the joystick. The Declutch Shutoff is not lit and Front-Wheel Steer Mode must be active to proceed to Road Use Operation.

Note: *Activate this function before traveling on public roads. See "Road Operation" on page 3-8.*

8. **Warning Indicator**
   The RED LED illuminates for **high priority problems**.
   - Engine Oil Pressure
   - Engine Temperature
   - Transmission Temperature
   - Air Filter
   - Hydraulic Oil Filter
   - CAN Bus
   - Engine Speed Sensor
   - Hydraulic Pump Pressure
   - Short Circuit Main Control Valve
   - Boom Angle Sensor

⚠ CAUTION

EQUIPMENT DAMAGE. When the red LED illuminates and a warning tone is heard, immediately bring machine to a stop, lower boom and attachment to ground and stop the engine. Determine cause before continued use.

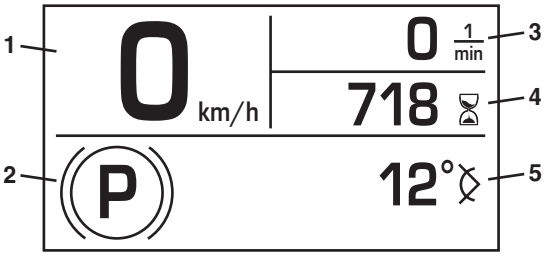
9. **Auxiliary Hydraulic Indicator**
   Attachment hydraulic system in continuous operating mode when LED is lit. (e.g. street sweeper)

10. **Display Screen**
    Displays Operating Status, Fault Codes and Service Codes. See page 2-12 for details.

11. **Anti Theft Device Indicator**
    LED lit while actived: Enter the anti theft code. Refer to page 2-15 for details.

12. **Service Indicator**
    Indicates a maintenance interval when LED is lit. Service is required.

Display Screen



OZ0030

The display screen consists of five sections:

1. Speed Indicator (km/h)
2. Symbol Display
3. Engine Speed Indicator (rpm)
4. Operating Hours Indicator (Bh)
5. Boom Angle, Aux Hydraulic and Common Message Display

Symbol Display (Section 2)

a. **Parking Brake**
Displayed permanently when parking brake is applied (see page 2-17). Parking brake must be applied to start engine. Symbol will flash when parking brake is not applied and attempting to start engine.

OH2480

b. **Glow Indicator**
Displayed when ignition key is in position-1; engine preheat. Symbol is shown until start temperature is reached. After the symbol disappears, the engine can be started, do not start before.

OU0040

c. **Diagnostic Startup**
Displayed after system start, while startup diagnostic is in progress. Symbol is shown until startup diagnostics has been successfully completed. If the symbol does not disappear, a failure has been detected within the diagnosis. Stop engine immediately.

OZ1150

d. **Engine Oil Pressure**
Symbol displayed and buzzer sounds when low oil pressure exists. Stop engine immediately.

OT1010

e. **Engine Temperature**
Symbol displayed and buzzer sounds when engine oil temperature is too high. Stop engine immediately.

OZ0250

f. **Transmission Temperature**
Symbol displayed and buzzer sounds when transmission temperature is too high. Stop engine immediately.

OT0990

g. **Air Filter**
Symbol displayed and buzzer sounds when air filter is clogged. Stop engine immediately.

OZ0260

h. **Hydraulic Oil Filter**
Symbol displayed when the hydraulic oil filter requires cleaning. Stop engine immediately.

OT1030

i. **CAN Bus**
Symbol displayed when there is a component failure. Stop engine immediately.

OZ0270

j. **Engine Speed Sensor**
Symbol displays when engine speed is too low (faulty engine speed signal). Stop engine immediately.

OZ0250

k. **Main Hydraulic Pump Pressure**
Symbol displayed when there is low hydraulic oil pressure. Only emergency steering is available. Stop engine immediately.

OZ0290

l. **Short Circuit Main Control Valve**
Symbol displayed and buzzer sounds when voltage to the main control valve is out of range. Stop engine immediately.

OZ0310

m. **Boom Angle Sensor**
Symbol displayed and buzzer sounds when the boom angle is lower or higher than the allowed value. Retract and lower boom immediately.

OZ0340

Boom Angle, Auxiliary Hydraulic & Message Window (Section 5)

a. **Boom Angle Indicator**
Displays the boom angle in degrees.
(0 degrees indicates horizontal)

OZ0330

b. **Auxiliary Hydraulics**
When the permanent auxiliary hydraulic function is active, the display shows the percentage value (-100% to +100%) of the auxiliary hydraulic for 30 seconds. Also displays for 30 seconds at each change. See Section 4 - Attachments and Hitch Options for details.

c. **Message Window**
Code Entry - Anti Theft Device: Driver must enter four-digit code after system start. See page 2-15 for details.
Hardware-exchange: After a hardware exchange has occurred, the hardware-display will appear for 30 seconds. Pressing the OK button within those 30 seconds will access the hardware exchange menu.
Service: Service messages will be displayed after start-up for 30 seconds when a given service time interval elapses. Pressing the OK button within those 30 seconds will allow the driver to verify if the service has been completed.

User Interface - Level 1

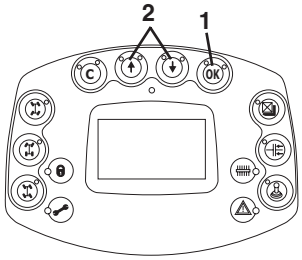
To access the menu hold the OK key down for 2 seconds.

- Language
- Anti Theft Device
- Operating Modes
- Diagnostics
- Fault Memory
- Service Display
- Vehicle Data

Note: *Access authorization (a numeric code) is required to view Levels 2 and 3.*

Anti Theft Device

Machines equipped with an anti theft device require entering a numeric code for operation to prevent unauthorized use. Use the arrow buttons in conjunction with the OK button to enter the code at startup.



OZ2100

Activating/Deactivating the Anti Theft Code

The anti theft device is set to a numeric code of **0000** when delivered from the factory. To prevent unauthorized access change the code upon first use.

1. Turn on the ignition key and wait for the power up checks to complete.
2. Press the OK button (**1**) for 2 seconds to access the user interface.
3. Using the arrow buttons (**2**), move to and select the Anti Theft Device menu item. Select modify code.
4. Enter the old code. (e.g. 0000). Use the arrow buttons to select the first digit. When selected, press the OK button to move to the next digit. Continue until the code is completed. Within 30 seconds enter the new code (e.g. 7777). Confirm with the OK button.

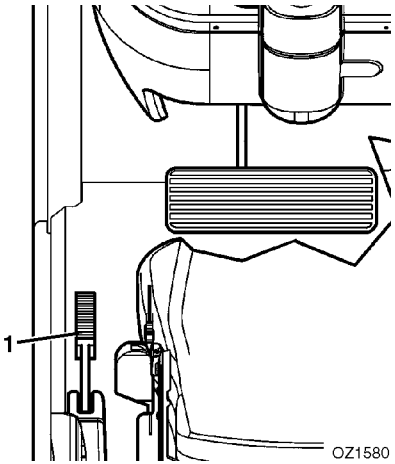
Note: *Memorize the new code. If the anti theft feature is active and the current access code is not known, it may be viewed by the machine owner in level 2 of Diagnostics (password required).*

To deactivate the anti theft device, go to the Anti Theft Device menu. Select modify code. Enter the current code (e.g. 7777). Within 30 seconds, enter the code **0000**.

Ignition

- Position **0 -** Engine off
- Position **1-** Engine preheat at temperature below 0°C. Wait until icon on display screen goes out.
- Position **2** - Prohibits rotating key switch to position 3 in the event the engine does not start. Rotate the key to position 0 then back to position 3 to re-engage the starter.
- Position **3**- Engine start.

Park Brake



- The Park Brake Lever (1) controls the application and release of the park brake.
- Pull back to activate.
- Push forward to deactivate.

⚠ WARNING

MACHINE ROLL-AWAY HAZARD. Always move park brake lever to "ON" position, lower boom to ground and stop engine before leaving cab. Machine roll-away could cause death or serious injury.

⚠ WARNING

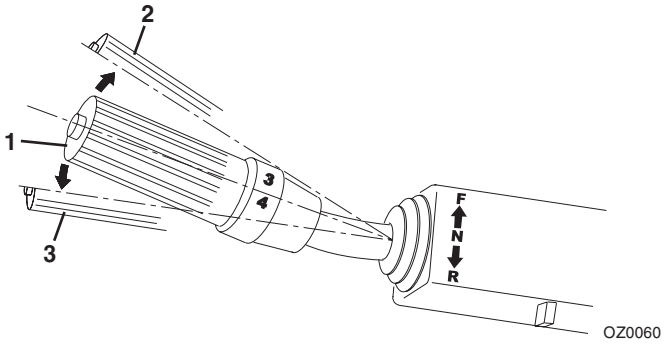
CRUSH HAZARD. Turning engine off applies the park brake. Applying park brake or turning engine off while traveling will cause unit to stop abruptly and could cause load loss, resulting in death or serious injury. Either may be used in an emergency situation.

Parking Procedure

1. Using service brake, stop telehandler in an appropriate parking area.
2. Follow *"Shut-Down Procedure"* on page 3-4.

Transmission Control

Direction of Travel Selection

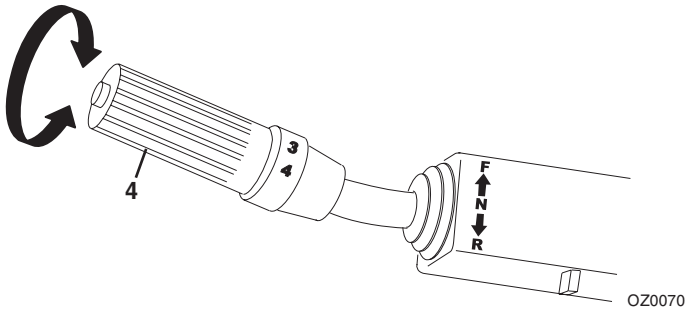


- This lever (**1**) engages forward or reverse travel. Push lever forward (**2**) for forward travel; pull lever rearward (**3**) for reverse travel. Move lever to centered position for 'Neutral'.
- Forward or reverse travel can be selected while in any gear.
- When traveling in reverse, the back-up alarm will automatically sound.
- Drive in reverse and turn only at slow rates of speed.
- Do not increase engine speed with the transmission in forward or reverse and the service brake depressed in an attempt to get quicker hydraulic performances. This could cause unexpected machine movement.

⚠ WARNING

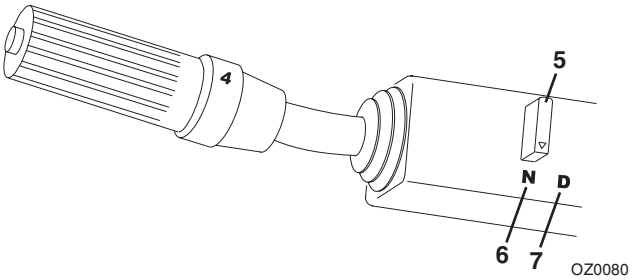
TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop before shifting transmission control lever. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall. Failure to comply could result in death or serious injury.

Gear Selection



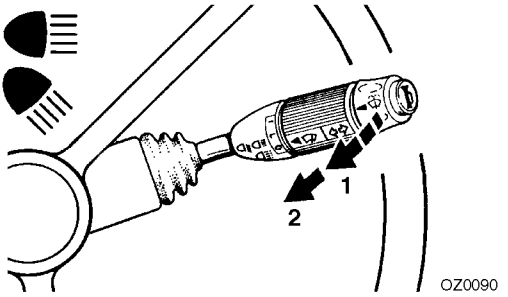
- Gear selection is located on the twist grip handle (**4**) of transmission control lever. Twist hand grip to select gear.
- Select the appropriate gear for the task being performed. **Use a lower gear when transporting a load**. Use a higher gear only when driving unloaded for longer distances.
- Slow down prior to downshifting. **Do not downshift more than one gear at a time.**

Neutral Lock Lever

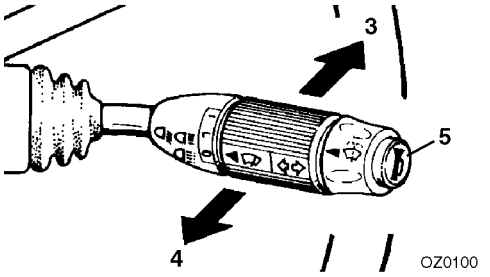


- To lock the transmission control lever in the neutral position, place the transmission control lever in the neutral position and move the neutral lock lever (**5**) the “N” position (**6**).
- To unlock, move the neutral lock lever to the “D” position (**7**).

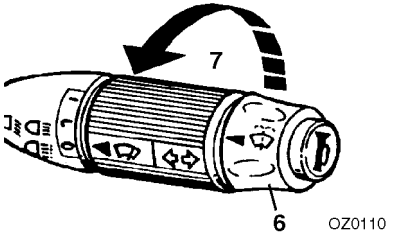
Wiper, Lights and Turn Signal Control Lever



1. Flash-to-Pass: Pull the lever back completely. The high beam indicator will light.
2. High/Low Beam: With the lights on, pull the lever to switch to high or low beam. The high beam indicator will light when the high beam lights are on.

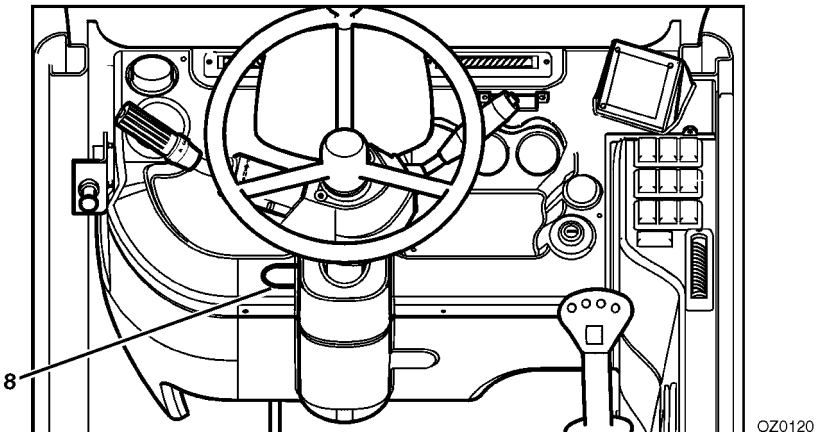


3. Left Turn Signal: Push the lever forward.
4. Right Turn Signal: Pull the lever backward.
5. Horn: Push the button.



6. Windshield Washer: Slide the sleeve toward the steering column.
7. Windshield Wiper: Rotate the sleeve to the desired setting, “O”-Off, “J”-Interval or “I”-Continuous.

Steering Column Adjuster



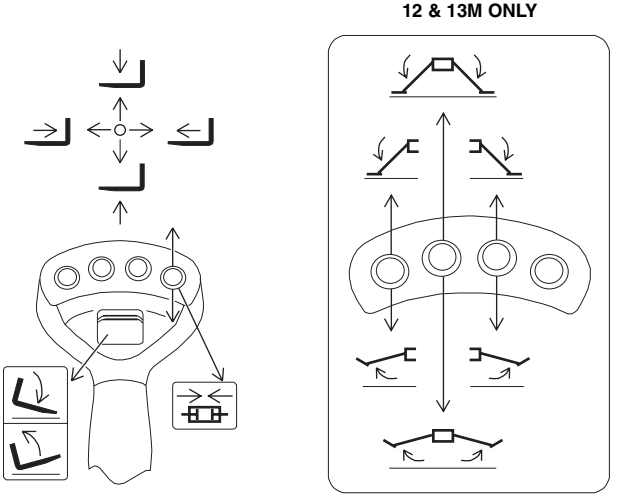
- Follow *"Shut-Down Procedure"* on page 3-4.
- Loosen the knob (**8**).
- Place the steering column in the desired position.
- Retighten the knob.

⚠ WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop and shutdown engine before adjusting steering column. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall. Failure to comply could result in death or serious injury.

Joystick

Standard Controls



The joystick (**1**) controls the boom, attachment and outrigger functions.

Boom Functions

- Move the joystick back to lift boom; move joystick forward to lower boom; move joystick right to extend boom; move joystick left to retract boom.
- The speed of boom functions depends upon the amount of joystick travel in corresponding direction. Increasing engine speed will also increase function speed.
- For two simultaneous boom functions, move the joystick between quadrants. For example; moving the joystick forward and to the left will lower and retract boom simultaneously.

WARNING

TIP OVER/CRUSH HAZARD. Rapid, jerky operation of controls will cause rapid, jerky movement of the load. Such movements could cause the load to shift or fall or could cause the machine to tip over. Failure to comply could result in death or serious injury.

Attachment Functions

- Attachment tilt is control by the rocker switch (**2**). Push the rocker switch up to tilt attachment forward (down); push the rocker switch down to tilt attachment back (up).
- Auxiliary Hydraulics (optional) button (**6**) controls function of attachments that require hydraulic supply for operation. See Section 4 - Attachments and Hitch Options for approved attachments and control instructions.

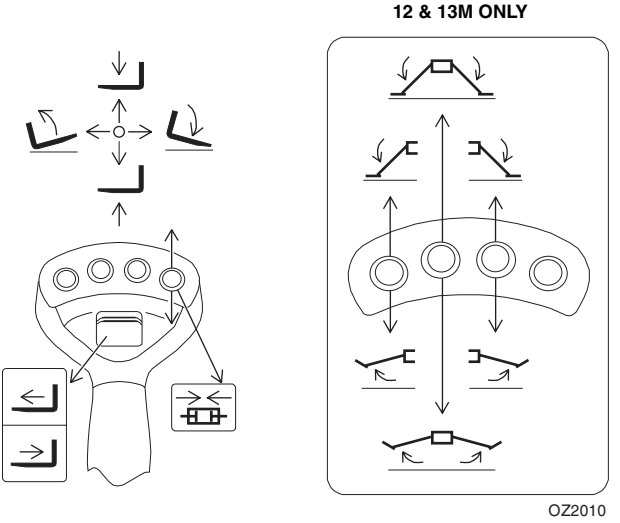
Outrigger Functions (12 & 13M)

- Button (**3**) controls the left outrigger. Press and hold the button; move the joystick forward to lower the outrigger; move the joystick back to raise the outrigger.
- Button (**5**) controls the right outrigger. Press and hold the button; move the joystick forward to lower the outrigger; move the joystick back to raise the outrigger.
- Button (**4**) controls both outriggers simultaneously. Press and hold the button; move the joystick forward to lower the outriggers; move the joystick back to raise the outriggers.

⚠ WARNING

TIP OVER HAZARD. Outriggers increase stability and load capacity only if they are used properly. Using outriggers on soft surfaces could cause telehandler to tip over and result in death or serious injury. Always ensure surface can support telehandler and load.

Optional Controls



The joystick (**1**) controls the boom, attachment and outrigger functions.

Boom Functions

- Move the joystick back to lift boom; move joystick forward to lower boom.
- Boom extend/retract is controlled by the rocker switch (**2**). Push the rocker switch up to extend boom; push the rocker switch down to retract boom.
- The speed of boom functions depends upon the amount of joystick travel in corresponding direction. Increasing engine speed will also increase function speed.
- For two simultaneous boom functions, move the joystick between quadrants. For example; moving the joystick forward and to the left will lower boom and tilt attachment back (up) simultaneously.

⚠ WARNING

TIP OVER/CRUSH HAZARD. Rapid, jerky operation of controls will cause rapid, jerky movement of the load. Such movements could cause the load to shift or fall or could cause the machine to tip over. Failure to comply could result in death or serious injury.

Attachment Functions

- Move the joystick right to tilt attachment forward (down); move joystick left to tilt attachment back (up).
- Auxiliary Hydraulics (optional) button (**6**) controls function of attachments that require hydraulic supply for operation. See Section 4 - Attachments and Hitch Options for approved attachments and control instructions.

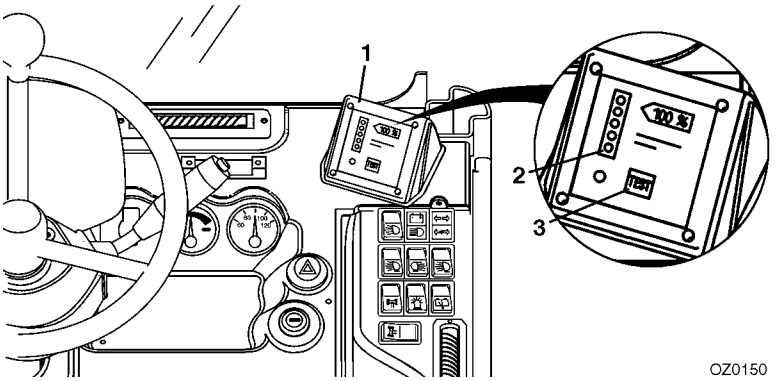
Outrigger Functions (12 & 13M)

- Button (**3**) controls the left outrigger. Press and hold the button; move the joystick forward to lower the outrigger; move the joystick back to raise the outrigger.
- Button (**5**) controls the right outrigger. Press and hold the button; move the joystick forward to lower the outrigger; move the joystick back to raise the outrigger.
- Button (**4**) controls both outriggers simultaneously. Press and hold the button; move the joystick forward to lower the outriggers; move the joystick back to raise the outriggers.

⚠ WARNING

TIP OVER HAZARD. Outriggers increase stability and load capacity only if they are used properly. Using outriggers on soft surfaces could cause telehandler to tip over and result in death or serious injury. Always ensure surface can support telehandler and load.

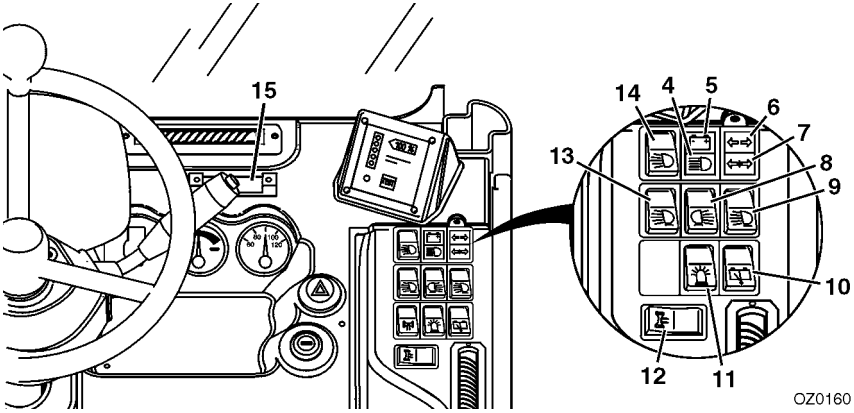
Load Moment Indicator (LMI)



The Load Moment Indicator (**1**) provides a visual indication for forward stability limitations.

- All five LEDs (**2**) will progressively light (three green, then yellow & then red). The warning buzzer sounds and the red LED is illuminated as the telehandler reaches its forward stability limitations.
- Overload Protection Function. When the red LED is illuminated the automatic overload protection function is activated. Boom extension and lower functions are disabled.
- Test the Load Moment Indicator (**3**) at the beginning of each work shift. See Section 7 - Additional Checks.

Control and Indicator Console



Controls and indicates the electrical accessories of the telehandler.

4. High Beam Indicator: Illuminates when high beam lights are on.

5. Battery Charge Indicator: Illuminates when battery is at low charge.

6. Telehandler Turn Signal Indicator

7. Trailer Turn Signal Indicator (optional)

8. Rear Work Light Switch

9. Boom Work Light Switch

10. Rear Wiper Switch: Press and hold for 2 seconds or more to turn on. Remains on until the key is released.

11. Rotating Beacon Switch (optional): Place the magnetic base of the rotating beacon on the cab roof. Power is supplied by a 12V receptacle at the left rear part of the cab roof.

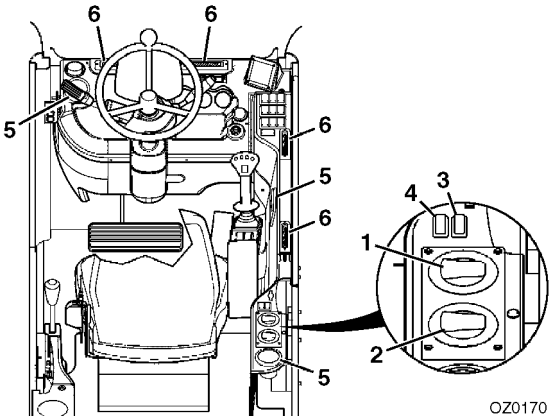
12. Frame Sway (optional): Controls the left to right frame sway. Press left side of switch to sway frame left; press right side of switch to sway frame right.

Note: *Frame Sway is inoperable with boom angle greater than 20 degrees.*

13. Front Work Light Switch (optional)

14. Driving Lights Switch

Heater and Air Conditioner (optional) Controls



1. Fan Speed: 3-position rotary switch for heater and air conditioner.
2. Temperature Control: Adjustable rotary switch.
3. Air Conditioner (optional): On/Off switch.
4. Recirculate (optional): On/Off switch used for optimum air conditioner performance. In this mode no outside air is drawn into the cab.
5. Round Vent
6. Air Louver

Heater

Turn the temperature control to the desired temperature and set the fan speed. Adjust the air flow through the air louvers and round vents.

Air Conditioner (optional)

Turn on the air conditioner and set the fan speed. Activate the recirculation control to cool the cab more quickly. Adjust the air flow through the air louvers and round vents.

Note: *When the windows are misted over, run the air conditioner and heater at the same time.*

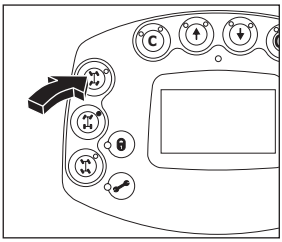
Defrosting

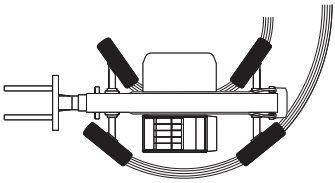
Direct the flow of air through the louvers and the left front round vent toward the windshield. Close the other two round vents.

2.5 STEER MODES

Stop the telehandler before changing steering modes. An LED will indicate the steering mode selected.

All-Wheel Steer

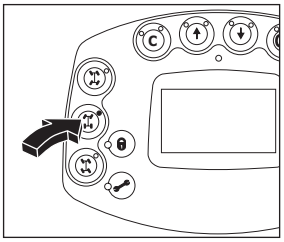


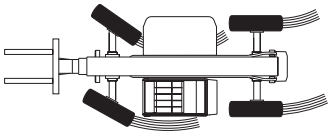


OZ0180

Front-Wheel Steer

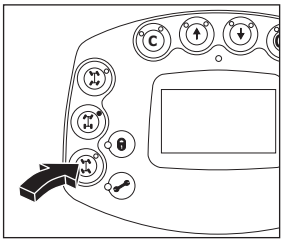
Note: *This mode is required for travel on public roads.*

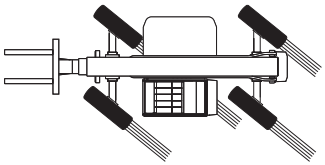




OZ0190

Crab Steer

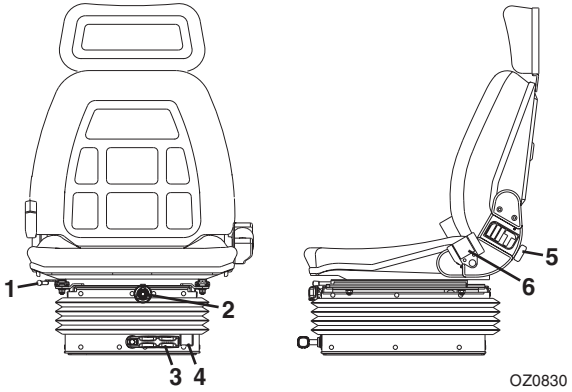




OZ0200

2.6 OPERATOR SEAT

Adjustments



Prior to starting the engine adjust seat for position and comfort as follows:

Fore/Aft

Use the handle (**1**) to move seat fore and aft.

Height

Use the knob (**2**) to adjust the height of the seat.

Suspension

Use the knob (**3**) to adjust the suspension to the appropriate weight setting (**4**).

Backrest

Use knob (**5**) to adjust backrest angle.

Seat Belt

Always fasten seat belt (**6**) during operation.

Seat Belt

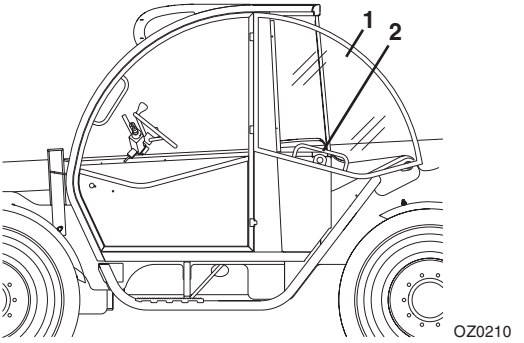
Fasten seat belt as follows:

1. Grasp both free ends of the belt making certain that belt webbing is not twisted or entangled.
2. With back straight in the seat, couple the retractable end (male end) of the belt into the receptacle (buckle) end of the belt.
3. With belt buckle positioned as low on the body as possible, pull the retractable end of the belt away from the buckle until it is tight across the lap.
4. To release belt latch, depress red button on the buckle and pull free end from buckle.

2.7 MIRRORS AND WINDOWS

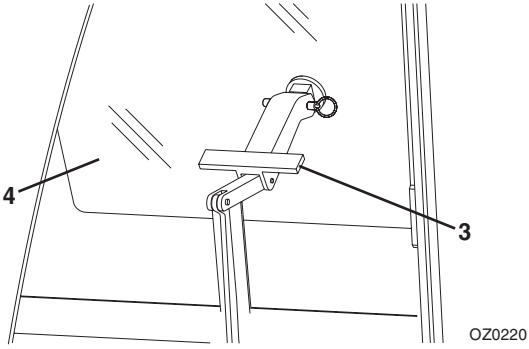
Keep all windows and mirrors clean and unobstructed.

Cab Door Window



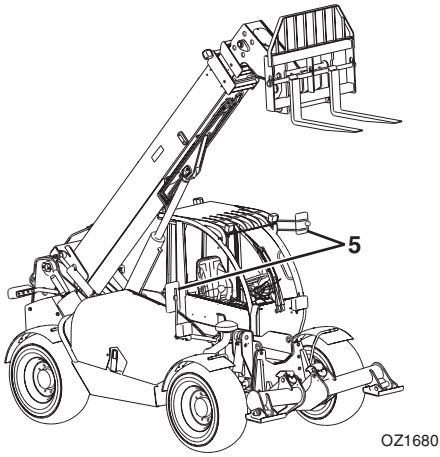
- During operation the window must either be latched open or closed.
- Open the cab door window (**1**) and secure it in the latch.
- Press the release button (**2**) inside the cab to unlatch the window.

Rear Window



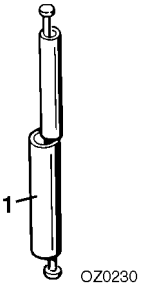
- Lift lever (**3**) and push to open the rear window (**4**).
- Lift lever and pull to close.

Mirrors



- Adjust mirrors (**5**) as required for maximum visibility, before and during operation.

2.8 HOOD



- To close the hood, slide the gas cylinder lock (**1**) to one side.
- Close and secure the hood.

SECTION 3 - OPERATION

3.1 WARM-UP AND OPERATIONAL CHECKS

This section outlines the checks to be performed at the beginning of each work shift or at each change of operator.

During warm-up period, check:

1. Heater, defroster and windshield wiper (if equipped).
2. Check all lighting systems (if equipped) for proper operation.

⚠ WARNING

CUT/CRUSH/BURN HAZARD. Keep engine cover closed while engine is running except when checking transmission oil level and hydraulic filter condition indicator (if equipped). Failure to comply could result in death or serious injury.

When engine warms, check:

1. Transmission fluid level.
2. Service brake and parking brake operation.
3. Forward and reverse travel.
4. Each gear.
5. Steering in both directions with engine at low idle (steering lock to lock will not be reached). Check in each steering mode.
6. Horn and back-up alarm. Must be audible from inside operators cab with engine running.
7. All boom and attachment functions - operate smoothly and correctly.
8. Perform any additional checks described in Section 7.

3.2 ENGINE

Starting the Engine

This machine can be operated in temperatures of -20°C to 40°C (0°F to 104°F). Consult JLG for operation outside this range.

1. If equipped, turn on the battery disconnect switch located in engine compartment.
2. Make sure all controls are in “Neutral” and all electrical components (lights, heater, defroster, etc.) are turned off. Set parking brake.
3. Turn ignition switch to preheat position. Enter anti theft code if anti theft device is activated. Wait for preheat symbol on display to disappear.
4. Turn ignition switch to position 3 to engage starting motor. Release key immediately when engine starts. If engine fails to start within 20 seconds, release key and allow starting motor to cool for a few minutes before trying again.
5. After engine starts, if engine oil pressure does not rise for more than ten seconds, the engine oil pressure symbol will show on display screen and buzzer will sound. Stop engine and determine cause before restarting engine. Reference engine manual for minimum pressure at operating temperature.
6. Warm up engine at approximately 1/2 throttle.

Note: *Engine will not start unless transmission control lever is in “Neutral” and park brake is applied.*

⚠ WARNING

UNEXPECTED MOVEMENT HAZARD. Always ensure that transmission control lever is in neutral and the service brake is applied before releasing park brake. Releasing park brake in either forward or reverse could cause the machine to move abruptly, causing an accident resulting in death or serious injury.

⚠ CAUTION

ENGINE EXPLOSION. Do not spray ether into air intake for cold weather starting. Failure to comply could result in death or serious injury.

Battery Boosted Starting

If battery-boost starting (jump-start) is necessary, proceed as follows:

- Never allow vehicles to touch.
- Connect the positive (+) jumper cable to positive (+) post of discharged battery.
- Connect the opposite end of positive (+) jumper cable to positive (+) post of booster battery.
- Connect the negative (-) jumper cable to negative (-) post on booster battery.
- Connect opposite end of negative (-) jumper cable to ground point on machine away from discharged battery.
- Follow standard starting procedures.
- Remove cables in reverse order after machine has started.

⚠ WARNING

BATTERY EXPLOSION HAZARD. Never jump start or charge a frozen battery as it could explode. Keep sparks, flames and lighted smoking materials away from the battery. Lead acid batteries generate explosive gases when charging. Wear safety glasses. Failure to comply could result in death or serious injury.

Normal Engine Operation

- Observe gauges and display screen frequently to be sure all engine systems are functioning properly.
- **Be alert for unusual noises or vibration.** When an unusual condition is noticed, park machine in safe position and perform shut-down procedure. See *"Shut-Down Procedure"*. Report condition to your supervisor or maintenance personnel.
- **Avoid prolonged idling.** If the engine is not being used, turn it off.

Shut-Down Procedure

When parking the telehandler, park in a safe location on flat level ground and away from other equipment and/or traffic lanes.

1. Apply the park brake.
2. Shift the transmission to "Neutral."
3. Lower forks or attachment to the ground.
4. Operate engine at low idle for 3 to 5 minutes. **DO NOT over rev engine.**
5. Shut off engine and remove ignition key.
6. Exit telehandler properly.
7. Turn off electrical master switch in engine compartment (if equipped).
8. Block wheels (if necessary).

3.3 OPERATING WITH A LOAD

Lift Load Safely

- You must know the weight and load center of every load you lift. If you are not sure of the weight and load center, check with your supervisor or with the supplier of the material.

⚠ WARNING

TIP OVER HAZARD. Exceeding lift capacity of the telehandler could damage the equipment and/or cause tip over resulting in death or serious injury.

- Know the rated load capacities (refer to Section 4) of the telehandler to determine the operating range in which you can safely lift, transport and place a load.

Before Picking Up a Load

- Note the conditions of the terrain. Adjust travel speed and reduce amount of load if conditions warrant.
- Avoid lifting double-tiered loads.
- Make sure load is clear of any adjacent obstacles.
- Adjust spacing of forks so they engage the pallet or load at maximum width. See *"Adjusting/Moving Forks"* on page 4-11.
- Approach load slowly and squarely with fork tips straight and level. **NEVER** attempt to lift a load with just one fork.
- **NEVER** operate telehandler without a proper and legible Capacity Chart in the operator's cab for the telehandler/attachment combination you are using.

Transporting the Load

After engaging the load and resting it against the backrest, tilt the load back to position it for travel. Travel in accordance with the requirements set forth in Section 1 - General Safety Practices and Section 4 - Attachments and Hitch Options.

Leveling Procedure

1. Position machine in best location to lift or place load.
2. Apply parking brake and move transmission control lever to NEUTRAL.
3. Move boom/attachment to 1,2 m (4 ft) off ground.
4. Observe level indicator to determine whether machine must be leveled and level machine with switch (if equipped), see page 2-27 for details.

Important things to remember:

- Never raise the boom/attachment more than 1,2 m (4 ft) above ground unless telehandler is level.
- The combination of side sway and load could cause the telehandler to tip over.

The telehandler is designed to permit swaying the main frame 9° to left or right to compensate for uneven ground conditions.

Placing the Load

Before placing any load be sure that:

- The landing point can safely support the weight of the load.
- The landing point is level; front to back and side to side.
- Use the capacity chart (see page 4-3) to determine safe boom extension range.
- Align forks at the level load is to be placed, then extend boom slowly until load is just above area where it is to be placed.
- Lower the boom until the load rests in position and the forks are free to retract.

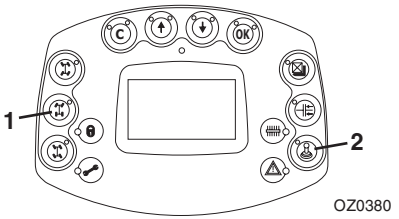
Disengaging the Load

Once the load has been placed safely at the landing point, proceed as follows:

1. With the forks free from the weight of the load, the boom can be retracted and/or the telehandler can be backed away from under the load if surface will not change level condition of telehandler.
2. Lower the carriage.
3. The telehandler can now be driven from the landing location to continue work.

3.4 ROAD OPERATION

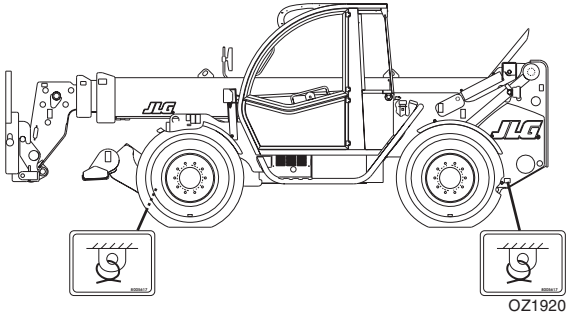
1. Preparation
   a. Empty bucket.
   b. Remove any large amounts of dirt from machine
   c. Check lights and mirrors and adjust if necessary.
   d. Safety equipment to be carried: Warning Triangle, First Aid Kit and Chock.
2. Lower boom. Front edge of attachment should be approximately 30-40 cm (12-16 in) above the ground.
3. Fully tilt attachment back
4. Place protective shield over front bucket edge; remove or reposition carriage forks toward the machine and secure to the carriage.



5. Select front wheel steering by pressing button (**1**) on the display panel. This mode is required for road travel.
6. Select road use button (**2**) to disable all joystick controlled functions.
7. Machine is now ready for road operation.

Note: *Be sure to follow all local and federal/provincial traffic regulations.*

3.5 LOADING AND SECURING FOR TRANSPORT


OZ1920

1. Level the telehandler prior to loading.
2. Using a spotter, load the telehandler with boom as low as possible.
3. Once loaded, apply parking brake and lower boom until boom or attachment is resting on deck. Move all controls to “Neutral,” stop engine and remove ignition key.
4. Secure machine to deck by passing chains through the designated tie down points as shown in the figure.
5. Do not tie down front of boom.

Note: *The user assumes all responsibility for choosing the proper method of transportation and tie-down devices, making sure the equipment used is capable of supporting the weight of the vehicle being transported and that all manufacturer’s instructions and warnings, regulations and safety rules of their employer, and all local and federal/provincial laws are followed.*

⚠ WARNING

TELEHANDLER SLIDE HAZARD. Before loading telehandler for transport, make sure deck, ramps and telehandler wheels are free of mud, snow and ice. Failure to do so could cause telehandler to slide, resulting in an accident causing serious injury or death.

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SECTION 4 - ATTACHMENTS AND HITCH OPTIONS

4.1 APPROVED ATTACHMENTS

To determine if an attachment is approved for use on the specific telehandler you are using, perform the following prior to installation.

- The attachment model/option number on the attachment identification plate must match the attachment number on a capacity chart located in the operator cab.
- The model on the capacity chart must match the model telehandler being used.
- The load center of the fork (if equipped) must match the load center as indicated on the capacity chart.
- Hydraulically powered attachments must only be used on machines equipped with auxiliary hydraulics.

If any of the above conditions are not met, do not use the attachment. The telehandler may not be equipped with the proper capacity chart or the attachment may not be approved for the model telehandler being used. Contact JLG or your local distributor for further information.

4.2 UNAPPROVED ATTACHMENTS

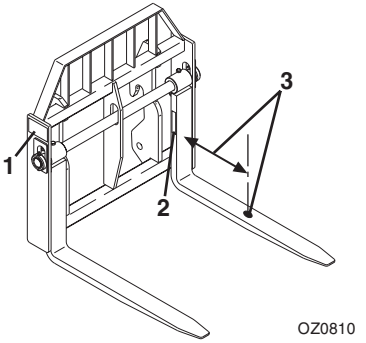
Do not use unapproved attachments for the following reasons:

- JLG cannot establish range and capacity limitations for “will fit,” homemade, altered, or other non-approved attachments.
- An overextended or overloaded telehandler can tip over with little or no warning and cause serious injury or death to the operator and/or those working nearby.
- JLG cannot assure the ability of a non-approved attachment to perform its intended function safely.

⚠ WARNING

Use only approved attachments. Attachments which have not been approved for use with your telehandler could cause machine damage or an accident resulting in death or serious injury.

4.3 TELEHANDLER/ATTACHMENT/FORK CAPACITY



Prior to installing the attachment verify it is approved and the telehandler is equipped with the proper capacity chart. See *"Approved Attachments"* on page 4-1.

To determine the maximum capacity of the telehandler and attachment, use the smallest of the following capacities:

- Capacity stamped on the attachment identification plate (**1**).
- Fork capacities and load centers are stamped on the side of each fork (**2**) (if equipped). This rating specifies the maximum load capacity that the individual fork can safely carry at the maximum load center (**3**). Total attachment capacity is multiplied by the number of forks on the attachment (if equipped), up to the maximum capacity of the attachment.
- Maximum capacity as indicated on the proper capacity chart. See *"Approved Attachments"* on page 4-1.
- When the load rating of the telehandler differs from the capacity of the forks or attachment, the lower value becomes the overall load capacity.

Use the proper capacity chart to determine maximum capacity at various machine configurations. Lifting and placing a load may require use of more than one capacity chart based on machine configuration.

Other than block forks, all forks should be used in matched pairs, block forks used in matched sets.

⚠ WARNING

Never use an attachment without the appropriate JLG supplied capacity chart installed on the telehandler. Failure to install the proper JLG supplied capacity chart could cause an accident resulting in death or serious injury.

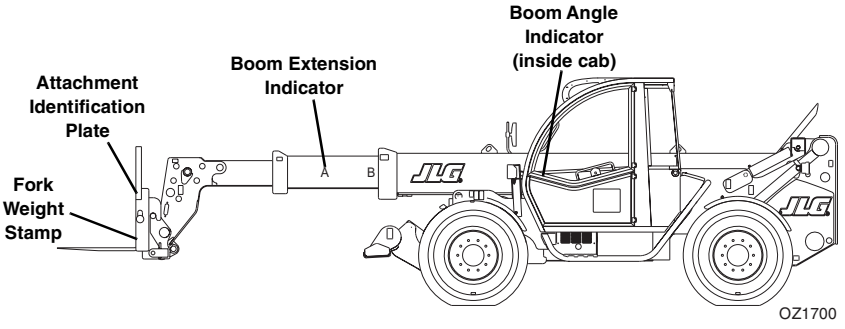
4.4 USE OF THE CAPACITY CHART

To properly use the capacity chart (see page 4-4), the operator must first determine and/or have the following:

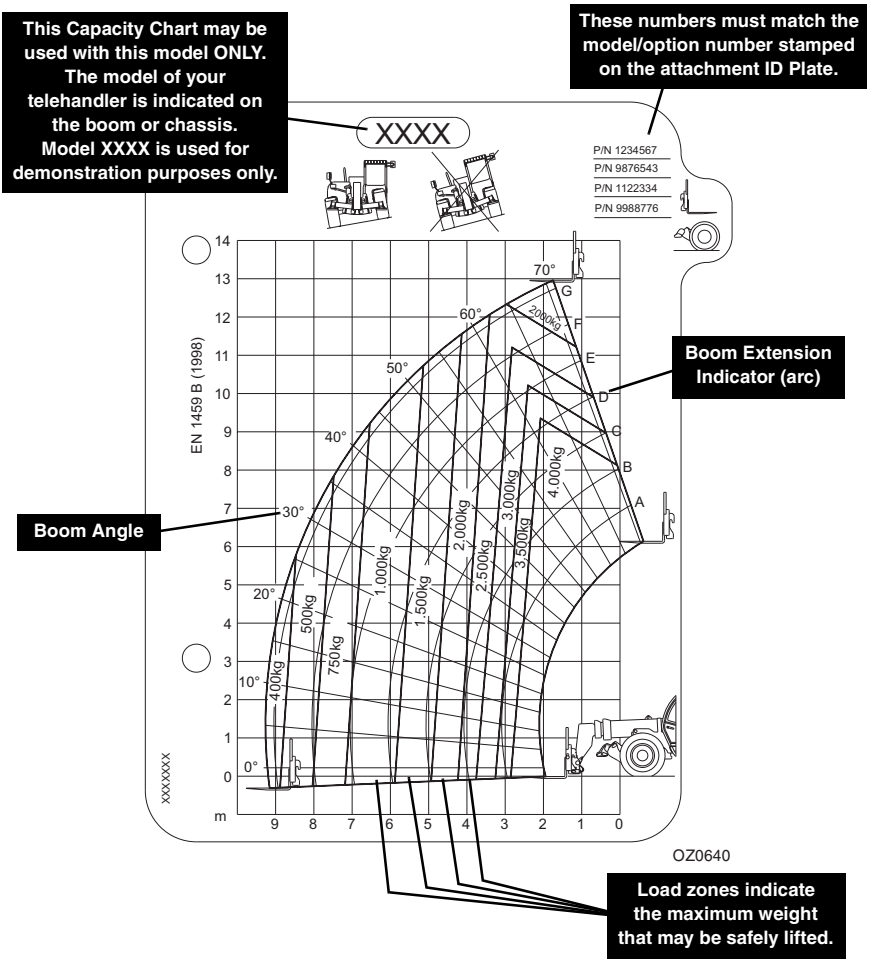
1. A JLG approved attachment. See *"Approved Attachments"* on page 4-1.
2. The proper Capacity Chart.
3. Weight of the load being lifted.
4. Load placement information:
   a. HEIGHT where the load is to be placed.
   b. DISTANCE from the front tires of the telehandler where the load is to be placed.
5. On the Capacity Chart, find the line for the height and follow it over to the distance.
6. The number in the load zone where the two cross is the maximum capacity for this lift. If the two cross at a division between zones, the smaller number must be used.

The number in the load zone must be equal to or greater than the weight of the load to be lifted. Determine the limits of the load zone on the Capacity Chart and keep within these limits.

Capacity Indicator Locations



Sample Capacity Chart


This Capacity Chart may be used with this model ONLY. The model of your telehandler is indicated on the boom or chassis. Model XXXX is used for demonstration purposes only.
These numbers must match the model/option number stamped on the attachment ID Plate.
XXXX
P/N 1234567
P/N 9876543
P/N 1122334
P/N 9988776
Boom Extension Indicator (arc)
Boom Angle
EN 1459 B (1998)
XXXXXX
OZ0640
Load zones indicate the maximum weight that may be safely lifted.

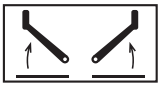
Note: *This is a sample capacity chart* ***only****!* ***DO NOT*** *use this chart, use the one located in your operator cab.*

⚠ WARNING

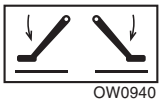
TIP OVER HAZARD. All loads shown on rated capacity chart are based on machine being on firm ground with frame level (see page 3-6); the forks being positioned evenly on carriage; the load being centered on forks; proper size tires being properly inflated; and the telehandler being in good operating condition. Failure to comply could result in death or serious injury.

To identify the proper capacity chart, refer to the following icons which may be located on the capacity chart.

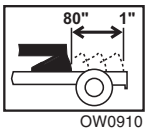
- Use when lifting a load with outriggers up.


OW0930

- Use when lifting a load with outriggers down.

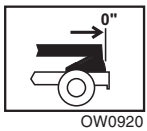

OW0940

- Use for any forward movement (1 to 80 in) of the transfer carriage.



OW0910

- Use for no forward movement (0 in) of the transfer carriage. Fully retracted position only.



OW0920

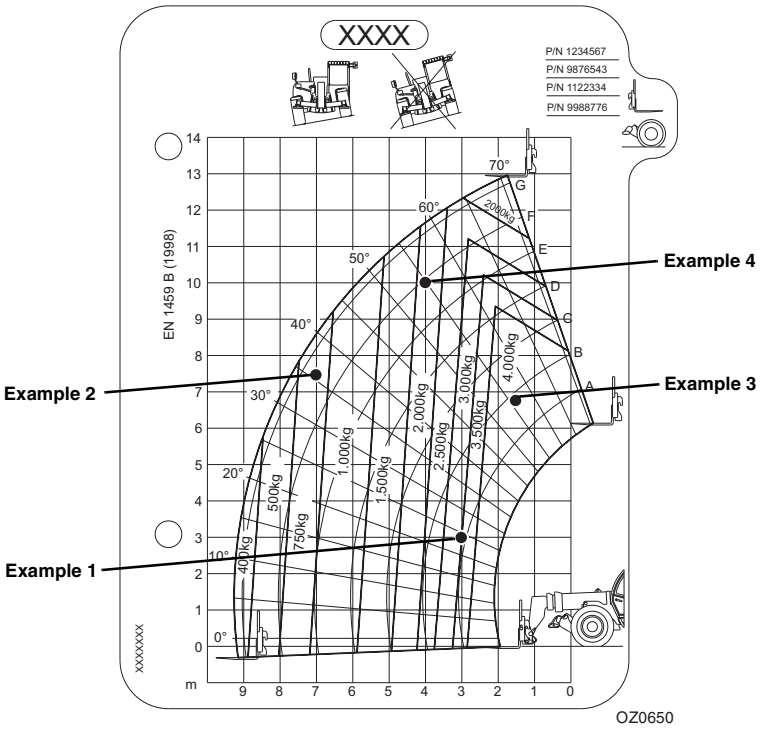
Example

A contractor owns a model xxxx telehandler with a fork carriage. He knows this attachment may be used with his model since:

- The attachment model/option number, matches the attachment number on the capacity chart.
- The capacity chart is clearly marked for model xxxx and corresponds with machine configuration being used.

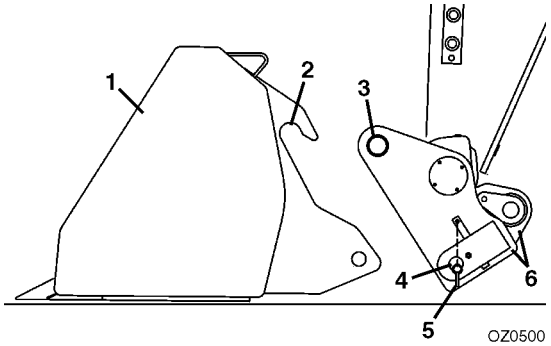
Below are examples with various conditions the contractor may encounter and whether or not the load may be lifted.

	Load Weight	Distance	Height	OK to Lift
1	3.000 kg (6,614 lbs)	3 m (9.8 ft)	3 m (9.8 ft)	Yes
2	900 kg (1,984 lbs)	7 m (23 ft)	7,5 m (24.6 ft)	NO
3	3.750 kg (8,267 lbs)	1,5 m (4.9 ft)	6,75 m (22.1 ft)	Yes
4	2.500 kg (5,512 lbs)	4 m (13.1 ft)	10 m (32.8 ft)	NO



Note: *This is a sample capacity chart* ***only****!* ***DO NOT*** *use this chart, use the one located in your operator cab.*

4.5 ATTACHMENT INSTALLATION



1. Attachment
2. Attachment Pin Recess
3. Attachment Pin
4. Lock Pin
5. Retainer Pin
6. Quick-Switch device (attachment tilt control in cab, see page 2-22 for details)

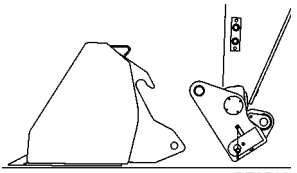
WARNING

CRUSH HAZARD. Always be certain that carriage or attachment is properly positioned on boom and is secured by lock pin and retainer pin. Failure to ensure proper installation could permit carriage/attachment/load to disengage causing death or serious injury.

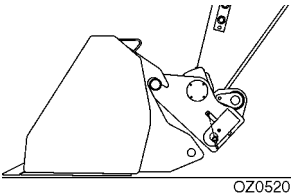
Mechanical Quick-Switch Device

This installation procedure is designed for one-person operation.

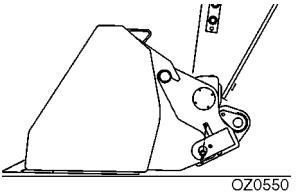
1. Retract quick-switch device to provide clearance. Check to be sure lock pin and retainer pin is out.


OZ0510

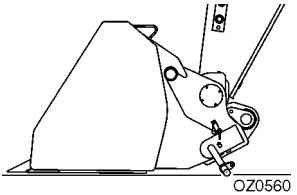
2. Align attachment pin with recess in attachment. Raise boom slightly to engage attachment pin in recess.


OZ0520

3. Engage quick-switch device.


OZ0550

4. Shut off engine. Exit cab and insert lock pin and secure with retainer pin.

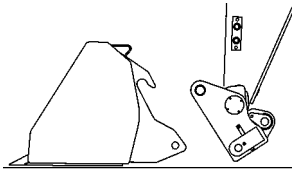

OZ0560

5. If attachment is equipped, connect auxiliary hydraulic hoses. See *"Hydraulic Quick-Switch Device"* on page 4-9.

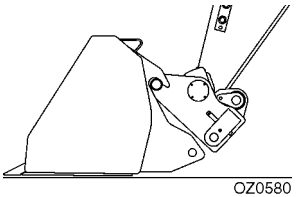
Hydraulic Quick-Switch Device

This installation procedure is designed for one-person operation.

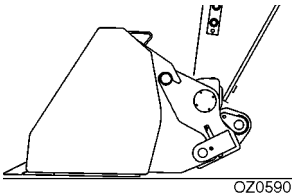
1. Retract quick-switch device to provide clearance. Check to be sure lock pin is disengaged.


OZ0570

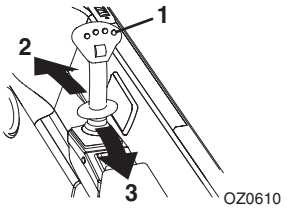
2. Align attachment pin with recess in attachment. Raise boom slightly to engage attachment pin in recess.


OZ0580

3. Engage quick-switch device.

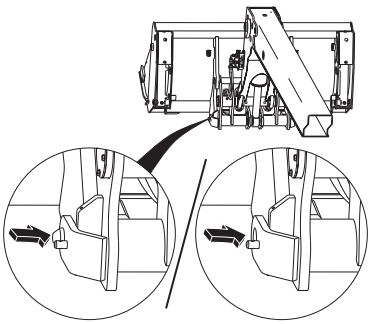

OZ0590

4. Press the button (**1**) and at the same time move the joystick (**2**) to engage or (**3**) to disengage the quick-switch device.



OZ0610

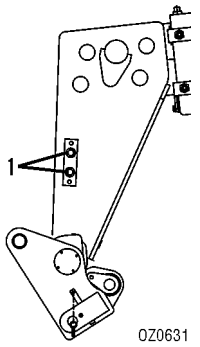
5. Raise boom to eye level and visually check that the quick-switch pin protrudes through the hole. If the pin does not protrude through the hole, place the attachment on the ground and return to step 2.



OZ0900

6. If attachment is equipped, connect auxiliary hydraulic hoses. See *"Hydraulic Quick-Switch Device"* on page 4-9.

Hydraulic Operated Attachment



1. Install attachment (see page 4-8).
2. Lower attachment to ground. Set parking brake, shut off engine and turn key back to the "ON" position.
3. Connect the quick-disconnect fittings (**1**).
4. Start the engine.

4.6 ADJUSTING/MOVING FORKS

Carriages may have different locations where forks can be positioned. Two different methods can be used for repositioning, depending upon the carriage structure.

Note: *Apply a light coating of appropriate lubricant to ease sliding of forks or fork bar.*

To slide forks:

1. Ensure attachment is properly installed. See *"Attachment Installation"* on page 4-7.
2. Elevate attachment to approximately 1,5 m (5 ft) and tilt carriage forward until fork heel is free from attachment.
3. Stand at the side of the carriage. To slide fork toward the center of the carriage, push the fork near the fork eye. To slide fork toward the edge of the carriage, pull the fork near the fork eye. To avoid pinching, do not place fingers or thumb between the fork and carriage structure.

If removing fork bar is necessary:

1. Rest forks on ground.
2. Remove fork bar.
3. Reposition forks.
4. Reinstall the fork bar and fork bar retaining mechanism(s).

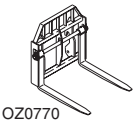
4.7 ATTACHMENT OPERATION

- Capacities and range limits for the telehandler change depending on the attachment in use.
- Separate attachment instructions must be kept in cab with this Operator & Safety Manual. An additional copy must be kept with the attachment if it is equipped with a manual holder.

⚠ CAUTION

EQUIPMENT DAMAGE. Some attachments may contact the front tires or machine structure when the boom is retracted and the attachment is rotated. Machine or attachment damage may occur from contact.

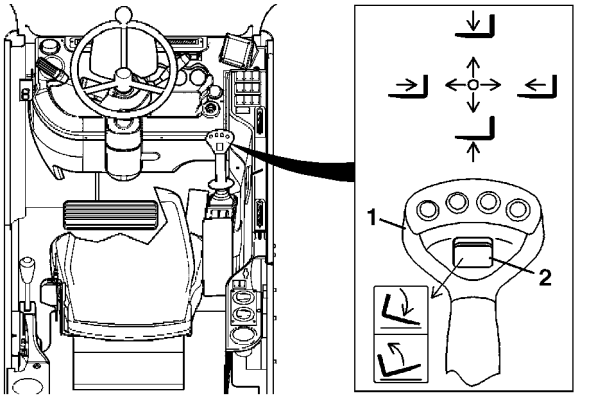
Carriage w/Forks


OZ0770

P/N	Description	Weight
1170001	Carriage	218 kg (481 lb)
2340029	Forks 45x125 mm	72 kg (159 lb)
2340030	Forks 50x100 mm	64,1 kg (141 lb)
1170028	Carriage	169 kg (373 lb)
2340040	Forks 50x120 mm	82 kg (181 lb)
2340041	Forks 50x100 mm	68 kg (150 lb)
4802111	Carriage	195 kg (430 lb)
8008014	Forks 50X150 mm	170 kg (375 lb)
8009653	Forks 50X100 mm	225 kg (496 lb)

Use Carriage Attachment Capacity Chart

To determine maximum capacity, refer to *"Telehandler/Attachment/Fork Capacity"* on page 4-2.



OZ0701

The joystick (**1**) controls movement of the boom.

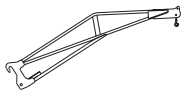
The attachment tilt rocker switch (**2**) located on the boom joystick controls carriage tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.

Installation Procedure:

- Refer to *"Attachment Installation"* on page 4-7.

Truss Boom

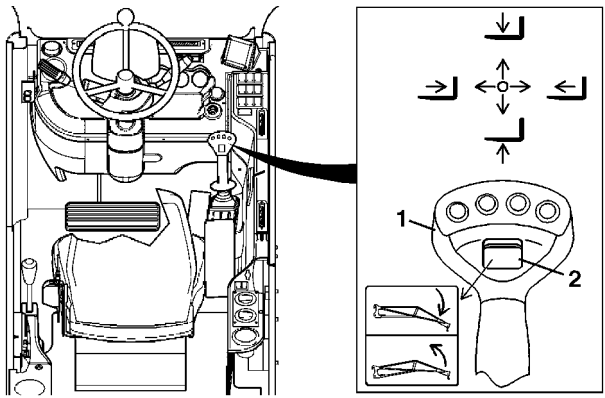

OZ0780

P/N	Description	Weight
0240110	Truss Boom 3,6 m - 650 kg	205 kg (452 lb)
0240063	Truss Boom 3,4 m - 1000 kg	250 kg (551 lb)
8007324	Truss Boom 3,4 m - 1000 kg	225 kg (496 lb)

Use Truss Boom Attachment Capacity Chart

To determine maximum capacity, refer to *"Telehandler/Attachment/Fork Capacity"* on page 4-2.

Suspend loads in accordance with requirements set forth in Section 1 - General Safety Practices.



OZ0681

The joystick (**1**) controls movement of the boom.

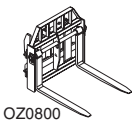
The attachment tilt rocker switch (**2**) located on the boom joystick controls truss boom tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.

Installation Procedure:

- Refer to *"Attachment Installation"* on page 4-7.

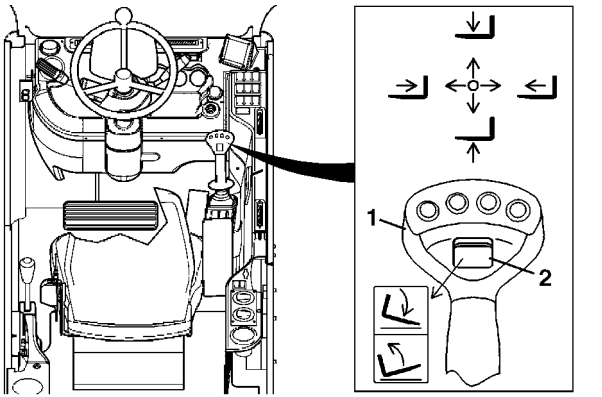
Side Shift Carriage


OZ0800

P/N	Description	Weight
1170002	Side Shift Carriage	410,6 kg (905 lb)
2340029	Forks 45x125 mm - 4 ton	72 kg (159 lb)
2340030	Forks 50x100 mm - 4 ton	64,1 kg (141 lb)
8009219	Side Shift Carriage	370 kg (816 lb)
8008014	Forks 50X150 mm	170 kg (375 lb)
8009653	Forks 50X100 mm	225 kg (496 lb)

Use Side Shift Carriage Attachment Capacity Chart

To determine maximum capacity, refer to *"Telehandler/Attachment/Fork Capacity"* on page 4-2.

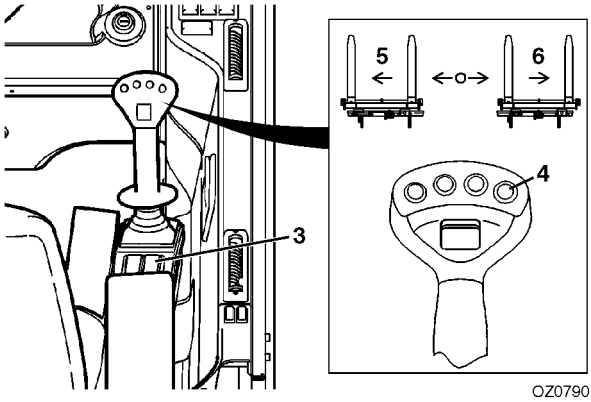


OZ0701

The joystick (**1**) controls movement of the boom.

The attachment tilt rocker switch (**2**) located on the boom joystick controls carriage tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.



To Side Shift:

Use the button (**3**) to select the auxiliary hydraulic circuit. While pressing and holding the joystick button (**4**), move the joystick to the left (**5**) to shift forks left or move the joystick to the right (**6**) to shift forks right.

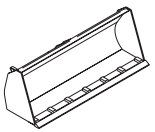
Installation Procedure:

- Refer to *"Attachment Installation"* on page 4-7.

WARNING

CRUSH HAZARD. Do not use side shift to push or pull objects or load. Failure to comply could cause object or load to fall resulting in death or serious injury.

Bucket

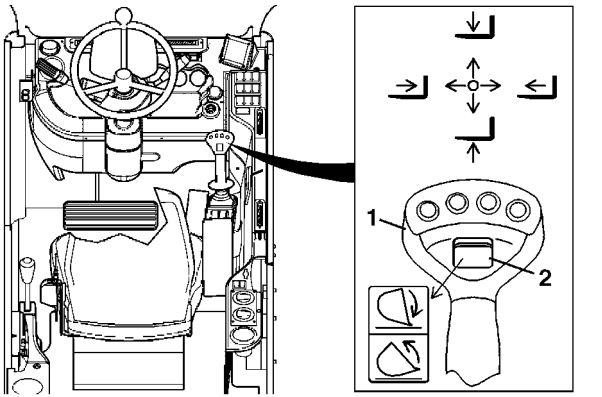


OZ0730

P/N	Description	Weight
4805670	Bucket w/Teeth 0.8 m^3	370 kg (816 lb)
4802100	Bucket w/Teeth 1.0 m^3	520 kg (1,146 lb)
0930001	Bucket 1.0 m^3	370 kg (816 lb)
0930003	Bucket, 4 in 1 - 1 m^3	819 kg (1,806 lb)
0930002	Bucket 2.0 m^3	650 kg (1,433 lb)
0930015	Bucket 0.9 m^3	323 kg (712 lb)
0930016	Bucket 1.8 m^3	472 kg (1,041 lb)
0930004	Bucket Manure 1 m^3	705 kg (1,554 lb)
8008420	Bucket w/Cutting Edge 1 m^3	430 kg (948 lb)
8008421	Bucket w/Cutting Edge 1 m^3	410 kg (904 lb)
8008424	Bucket, Tooth Protection	12 kg (27 lb)
8000873	Bucket 2 m^3	390 kg (860 lb)
8009217	Bucket, 4 in 1	690 kg (1,521 lb)
0240053	Bucket 1 m^3	430 kg (948 lb)

Use Appropriate Bucket Capacity Chart

To determine maximum capacity, refer to *"Telehandler/Attachment/Fork Capacity"* on page 4-2.



OZ0671

The joystick (**1**) controls movement of the boom.

The attachment tilt rocker switch (**2**) located on the boom joystick controls bucket tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.

Installation Procedure:

- Refer to *"Attachment Installation"* on page 4-7.

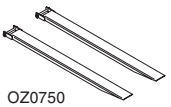
Equipment Damage Precautions

- Drive into stockpile smoothly with boom fully retracted to load bucket. Loading bucket with boom extended could damage boom. Do not corner-load bucket.
- Distribute material evenly within the bucket. Bucket capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying forces could damage bucket.
- Do not use bucket for "back dragging". This could cause severe damage to quick switch.

Operation:

- Raise or lower boom to appropriate height for loading material from stockpile.
- Align telehandler with face of stockpile and drive slowly and smoothly into pile to load bucket.
- Tilt bucket up far enough to retain load and back away from pile.
- Travel in accordance with requirements set forth in Section 1 - General Safety Practices.
- Tilt bucket down to dump load.

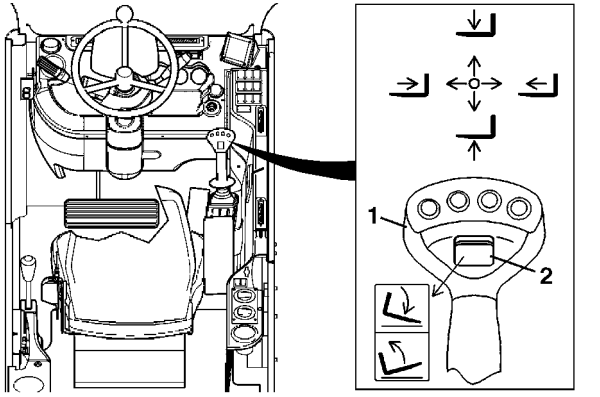
Fork Extension


OZ0750

P/N	Description	Weight
2340034	Fork Extension 2 m.....	44,1 kg (97 lb) each

Use Carriage Attachment Capacity Chart

To determine maximum capacity of the carriage, refer to *"Telehandler/Attachment/ Fork Capacity"* on page 4-2. The maximum capacity of the carriage when equipped with fork extensions may be reduced to the capacity indicated on the fork extensions. If the load exceeds the capacity of the fork extension contact JLG to obtain forks and/or fork extensions of the proper load rating and length.



OZ0701

The joystick (**1**) controls movement of the boom.

The attachment tilt rocker switch (**2**) located on the boom joystick controls fork tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.

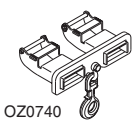
Installation Procedure:

- Refer to *"Attachment Installation"* on page 4-7.
- Ensure length and cross section of the parent fork arm is equal to or exceeds the parent fork arm blade length stamped into the fork extension.
- Secure the fork extensions to the forks by sliding the fork extension onto the parent fork and install the retaining pin behind the vertical shank of the fork.

Equipment Damage Precautions

- Inspect the fork extension at the beginning of each work shift for wear or damage.
- The heavy part of the load must be against the carriage backrest.
- Do not place the center of gravity of the load in front of the tip of the supporting fork.
- Do not pick up a load or pry materials with the tip of a fork extension.

Fork Hook

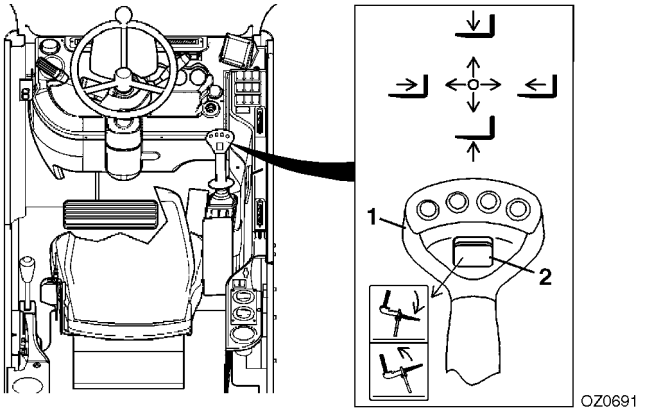

OZ0740

P/N	Description	Weight
2700097	Fork Hook 4 ton	33,6 kg (74 lb)
8008423	Fork Hook	30 kg (66 lb)

Use Fork Hook Attachment Capacity Chart

To determine maximum capacity, refer to *"Telehandler/Attachment/Fork Capacity"* on page 4-2.

Suspend loads in accordance with requirements set forth in Section 1 - General Safety Practices.



The joystick (**1**) controls movement of the boom.

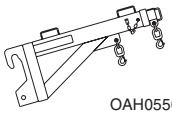
The attachment tilt rocker switch (**2**) located on the boom joystick controls fork hook tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.

Installation Procedure:

- Refer to *"Attachment Installation"* on page 4-7.
- Secure the fork hook to the forks by sliding the fork hook onto the parent forks and install the retaining pin behind the vertical shank of the fork.

Adjustable Truss Boom

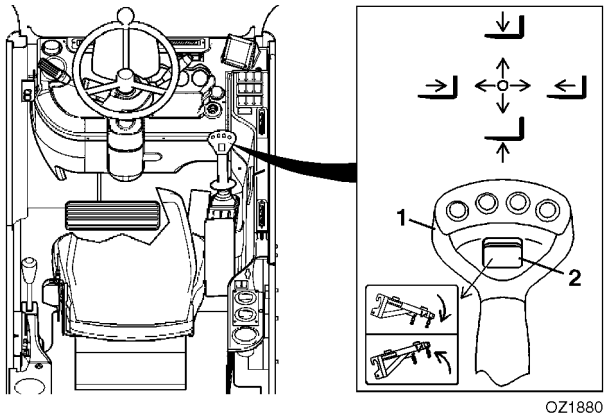

OAH0550

P/N	Description	Weight
0240145	Adjustable Truss Boom	180 kg (397 lb)

Use Adjustable Truss Boom Attachment Capacity Chart

To determine maximum capacity, refer to *"Telehandler/Attachment/Fork Capacity"* on page 4-2.

Suspend loads in accordance with requirements set forth in Section 1 - General Safety Practices.



OZ1880

The joystick (**1**) controls movement of the boom.

The attachment tilt rocker switch (**2**) located on the boom joystick controls truss boom tilt.

- Push rocker switch down to tilt up.
- Push rocker switch up to tilt down.

Installation Procedure:

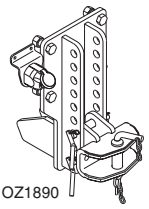
Refer to *"Attachment Installation"* on page 4-7.

⚠ WARNING

TIP OVER OR LOSS OF LOAD HAZARD. Ensure adjustable truss boom slide is secured using the retaining pin prior to lifting load. Failure to secure slide could cause tip over or load loss resulting in death or serious injury.

4.8 HITCH OPTIONS

Mechanical Hitch


OZ1890

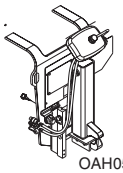
P/N	Description	Weight
8010199	Hitch	58 kg (128 lb)
8002824	Trailer Coupling	52,8 kg (116 lb)
8010198	Trailer Coupling	52,8 kg (116 lb)

Maximum towing capacity shall be the smallest of the telehandler and hitch capacities. Refer to local governmental regulations for additional towing requirements and/or restrictions.

Installation Procedure:

If not previously installed, secure hitch to machine with hardware supplied with installation.

Hydraulic Hitch

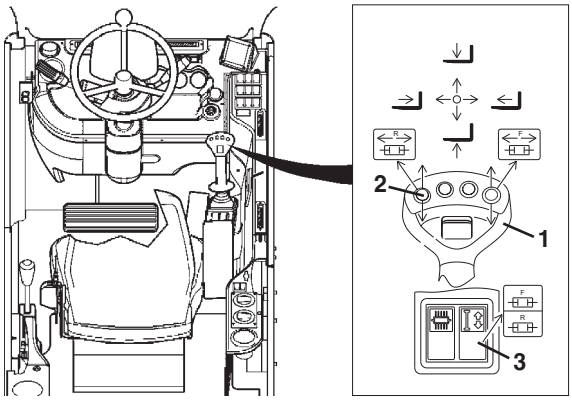

OAH0580

P/N	Description	Weight
0273601	Hydraulic Hitch	136 kg (300 lb)

Maximum towing capacity shall be the smallest of the telehandler and hitch capacities. Refer to local governmental regulations for additional towing requirements and/or restrictions.

Installation Procedure:

If not previously installed, secure hitch to machine with hardware supplied with installation.



OZ2050

The joystick (**1**) controls movement of the hydraulic hitch.

Use the joystick button (**2**) to select the hydraulic hitch circuit. While pressing and holding the joystick button, move the joystick to the left to release the hitch or move the joystick to the right to engage the hitch.

Toggle the rocker switch (**3**) on the joystick support back to use the continuous operation mode.

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SECTION 5 - EMERGENCY PROCEDURES

5.1 TOWING A DISABLED PRODUCT

The following information assumes the telehandler cannot be moved under its own power.

- Before moving the telehandler, read all of the following information to understand options available. Then select the appropriate method.
- The steering system permits manual steering if engine or power assist feature fails; however, **steering will be slow and will require much greater force.**
- **DO NOT** attempt to tow a telehandler that is loaded or the boom/attachment is raised above 1,2 m (4 ft).

Moving Short Distances

- If it is only necessary to move telehandler a short distance, less than 30 m (100 ft), it is permissible to use a vehicle of sufficient capacity to tow the unit with no previous preparation. Drive wheels will not roll.

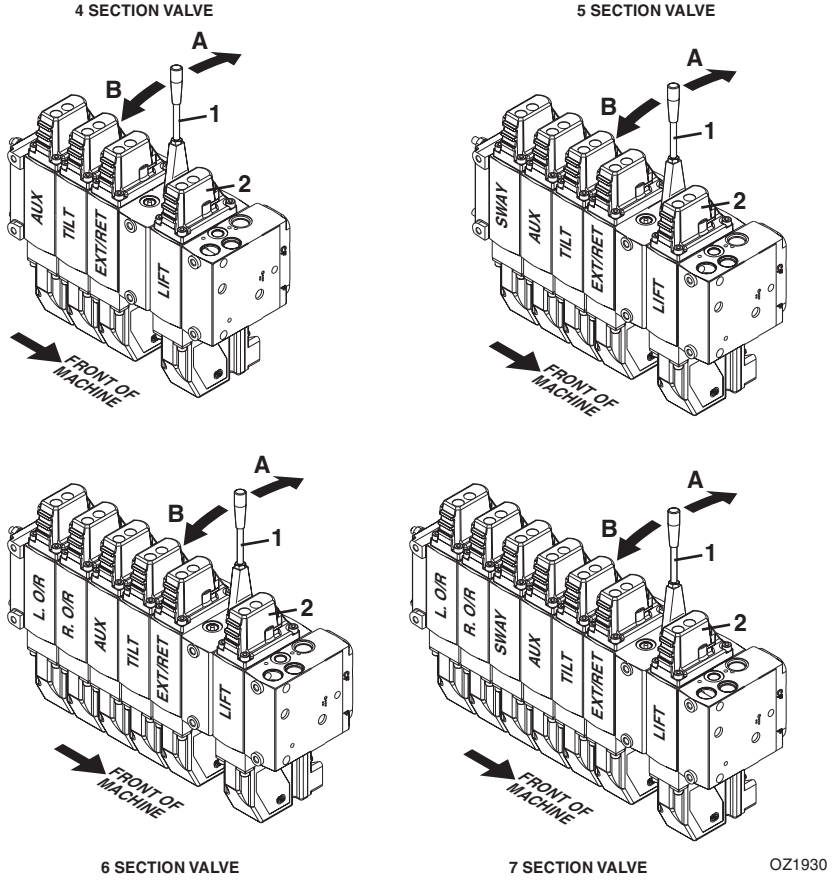
Moving Longer Distances

- If the telehandler must be moved longer distances, it must be loaded onto a trailer of sufficient capacity.

Contact your local Authorized Distributor for specific instructions if neither of these methods are applicable.

5.2 EMERGENCY LOWERING OF BOOM

Valve Layout



Cylinder/Function	A	B
Lift Cylinder:	Raise	Lower
Extend/Retract Cylinder:	Extend	Retract
Tilt Cylinder:	Up	Down
Auxiliary Hydraulics		
Sway Cylinder:	Left	Right
Right Outrigger:	Down	Up
Left Outrigger:	Down	Up

Electronic Control Unit Failure

If the telehandler's electronic control unit fails, the boom can be retracted then lowered manually. With the engine running perform the following:

1. Shift transmission control lever to neutral, apply parking brake and block wheels.
2. Open the hood.
3. Screw the handle (**1**) (located in cab toolbox) into the appropriate valve unit (**2**) or attach a 9mm wrench.
4. Carefully actuate the valve lever.

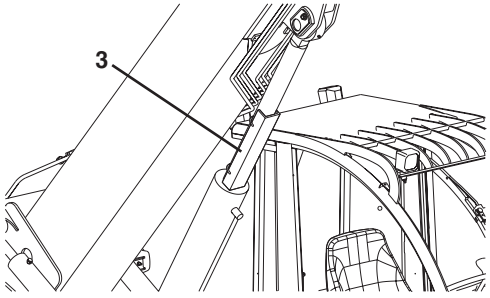
WARNING

TIP OVER HAZARD. To be used for retracting then lowering load only. Extending/lifting load could damage the equipment and/or cause tip over resulting in death or serious injury.

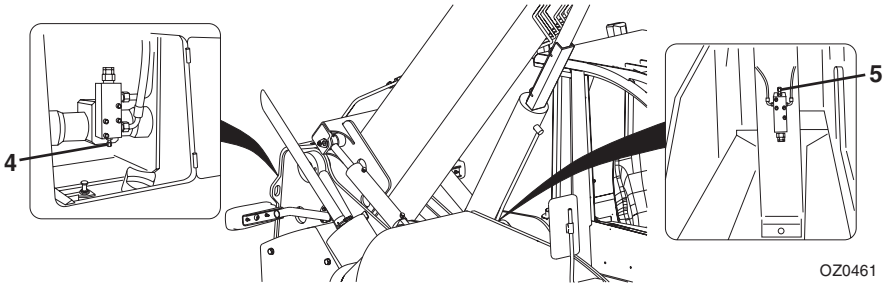
Engine Failure

If the telehandler's engine fails, the boom can be retracted then lowered manually.

Retract boom before lowering. If boom will not retract, use capacity chart to determine if lowering load without retracting boom will exceed machine capacity. Keep everyone clear of machine while performing the following procedure.



1. Apply the parking brake and block wheels
2. Install the cylinder block (**3**) on the lift cylinder. Cylinder block is located on left side of frame in front of cab.



Retracting Boom

3. Locate the valve (**4**) on the crowd cylinder in the compartment in the rear of the machine. Measure the height of the bolt on the underside of the valve. Remove the bolt. Remove the jam nut from the bolt. Reinstall the bolt until it bottoms out.
4. Retrieve the handle located in the operator's cab toolbox. Install the handle on the extend/retract valve section of the main control valve in the engine compartment (see *"Valve Layout"* on page 5-2). Using the handle slowly activate the valve to retract the boom.
5. Once the boom is retracted, reinstall the jam nut onto the bolt and reinstall into valve to previously measured height.

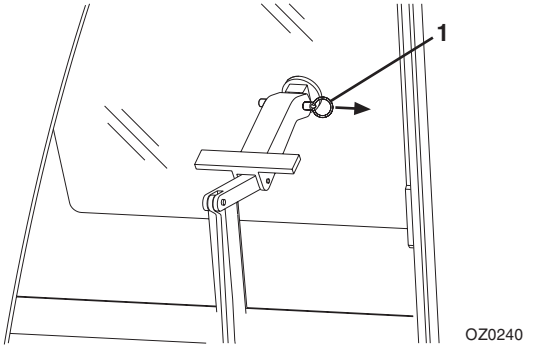
Lowering Boom

6. Locate the valve (**5**) on the lift cylinder. Measure the height of the small bolt. Remove the bolt. Remove the jam nut from the bolt. Reinstall the bolt until it bottoms out.
7. Retrieve the handle located in the operator's cab toolbox. Install the handle on the lift/lower valve section of the main control valve in the engine compartment (see *"Valve Layout"* on page 5-2). Using the handle slowly activate the valve to lower the boom.
8. Once the boom is lowered, reinstall the jam nut onto the bolt and reinstall into valve to previously measured height.
9. After machine is repaired and prior to first use, activate the joystick to ensure the holding valves are working properly.

⚠ WARNING

TIP OVER HAZARD. Load check valves need checked for proper operation by qualified service technician anytime after opening. Improperly adjusted load check valves could cause tip over resulting in death or serious injury.

5.3 CAB EMERGENCY EXIT



- In an emergency the rear window can be used to exit the telehandler.
- Remove the latch pin (**1**). The window is then free to swing open.

SECTION 6 - LUBRICATION AND MAINTENANCE

6.1 INTRODUCTION

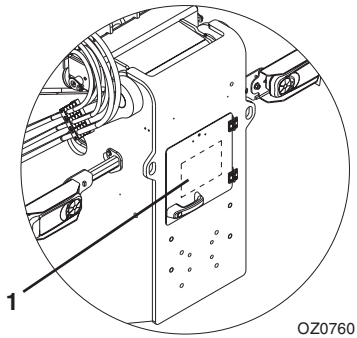
Service the product in accordance with the maintenance schedule on the following pages.

Service intervals are based on machine usage of 1500 hours annually. Use of your product may vary significantly and you must adjust service frequency for your usage to obtain maximum service life.

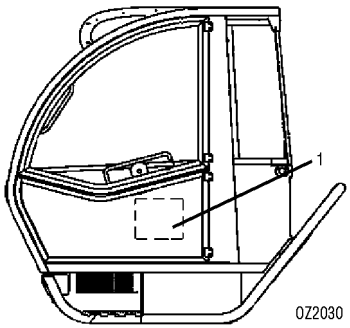
Note: *Failure To Use JLG Hydraulic Filter Elements Could Void Warranty.*

Clothing and Safety Gear

- Wear all the protective clothing and personal safety devices issued to you or called for by job conditions.
- **DO NOT** wear loose clothing or jewelry that can get caught on controls or moving parts.



VIEW OF REAR ACCESS DOOR



7M MACHINES WITH HYDRAULIC HITCH OPTION

- The Lubrication Decal (**1**) is located as indicated in figure. The lubrication decal is located in the cab below the joystick decals. The lubrication instructions must be followed to keep this product in good operating condition. The Operator & Safety Manual and Service Manual contain more detailed service information with specific instructions.

⚠ WARNING

CUT/CRUSH/BURN HAZARD. Do not perform service or maintenance on the machine with the engine running, with the exception of the transmission fluid level check. Failure to comply could cause death or serious injury.

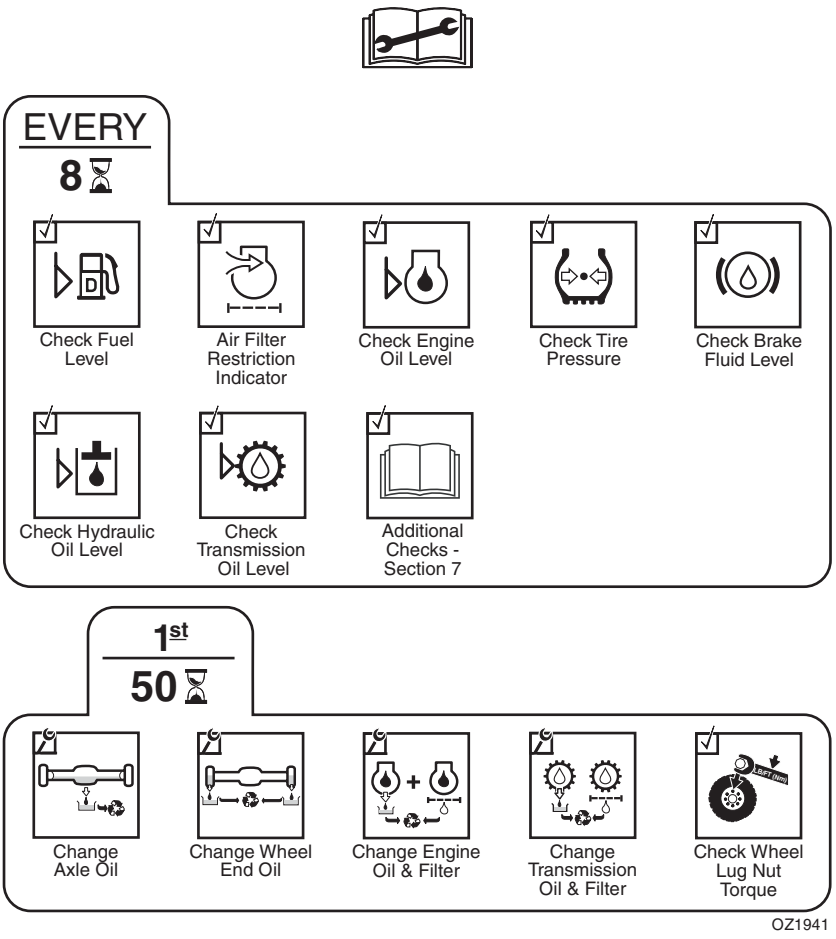
6.2 GENERAL MAINTENANCE INSTRUCTIONS

Prior to performing any service or maintenance on the telehandler, follow the *"Shut-Down Procedure"* on page 3-4 unless otherwise instructed. Ensure telehandler is level for proper fluid readings.

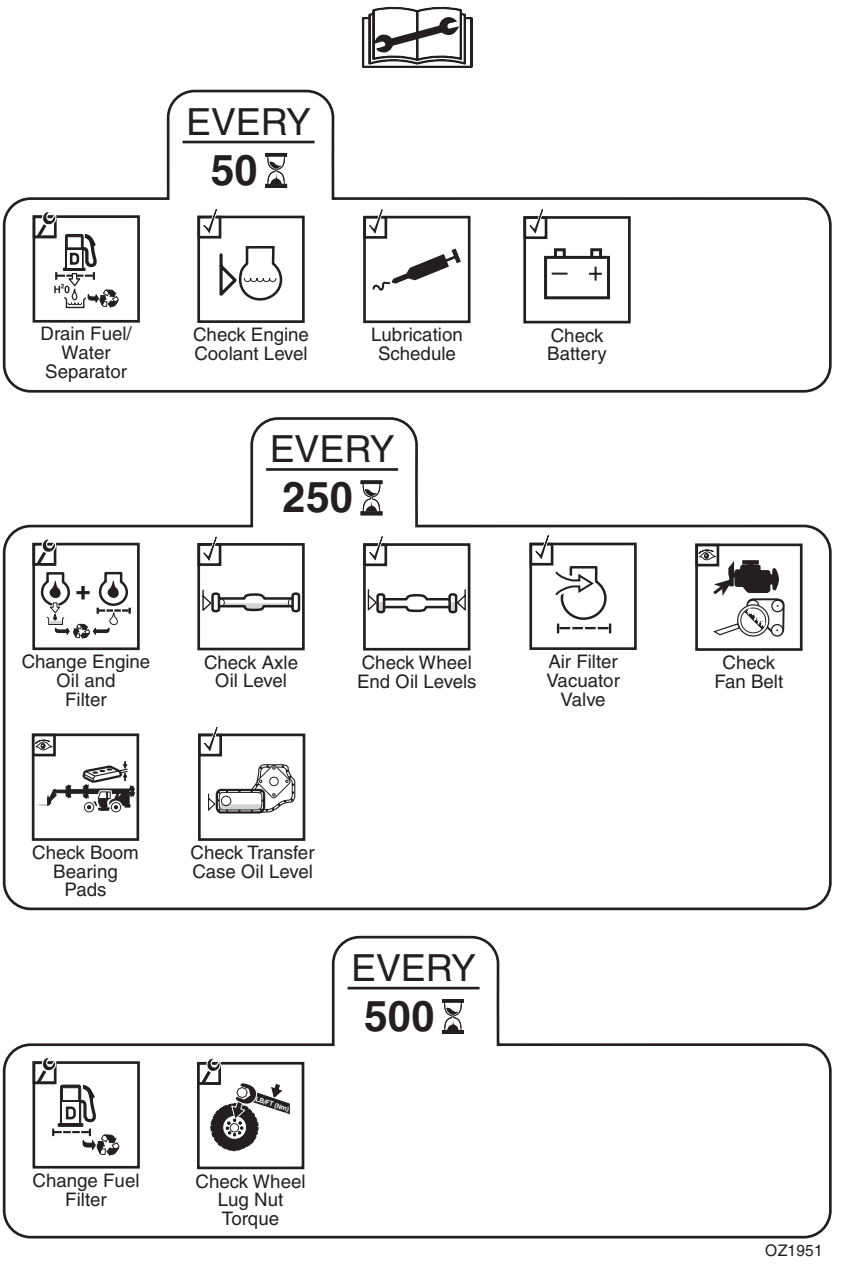
- Clean lubrication fittings before lubricating.
- After greasing telehandler, cycle all functions several times to distribute lubricants. Perform this maintenance procedure without attachment installed.
- Apply a light coating of engine oil to all linkage pivot points.
- Intervals shown are for normal usage and conditions. Adjust intervals for abnormal usage and conditions.
- Drain engine and gear cases after operating when oil is hot.
- Check all lubricant levels when lubricant is cool, with the exception of the transmission fluid. For ease of filling hydraulic reservoir, use a funnel with a hose or flexible tube for best results.

6.3 SERVICE AND MAINTENANCE SCHEDULES

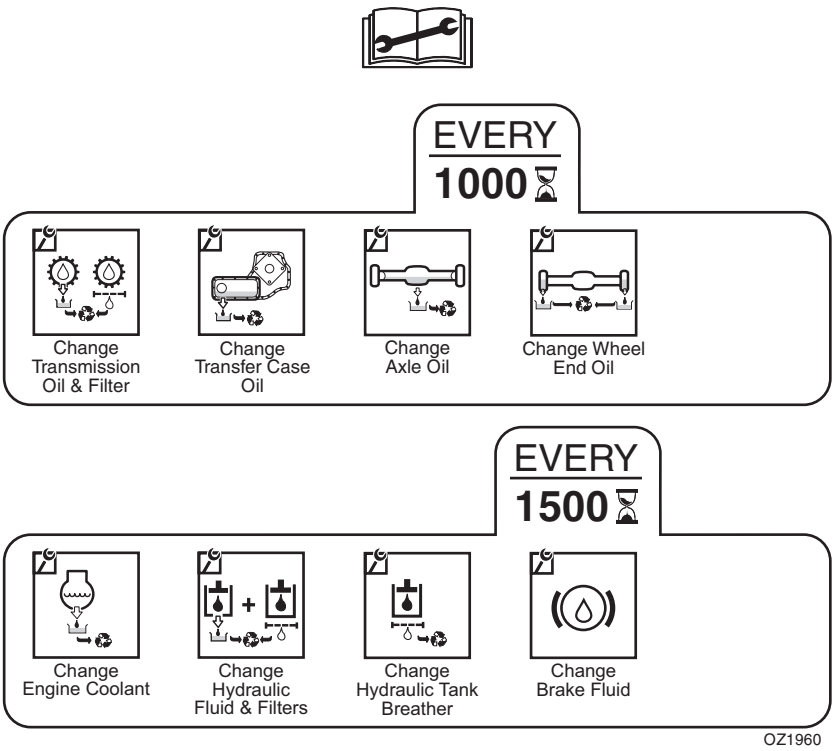
8 & 1st 50 Hour Maintenance Schedule



50, 250 & 500 Hour Maintenance Schedule



1000 & 1500 Hour Maintenance Schedule

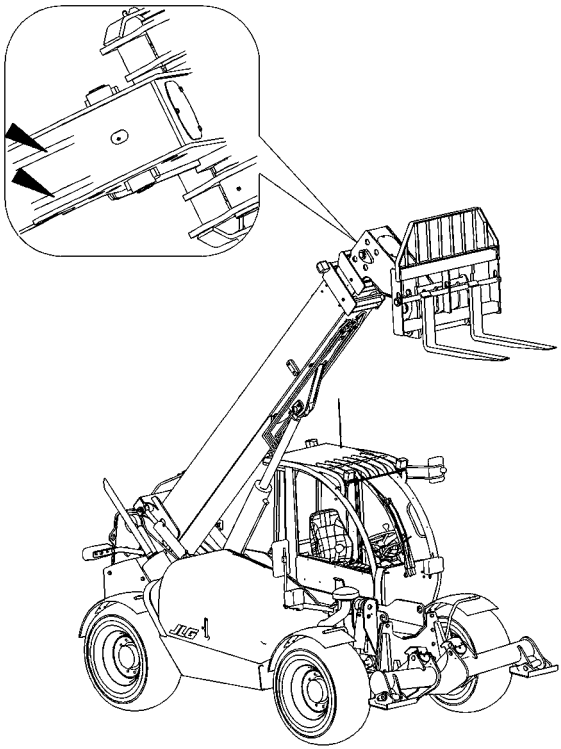


6.4 LUBRICATION SCHEDULES

8 Hour Lubrication Schedule

EVERY
8

Mystik Tetrimoly
(NGLI 2 GC-LB)



OZ1390

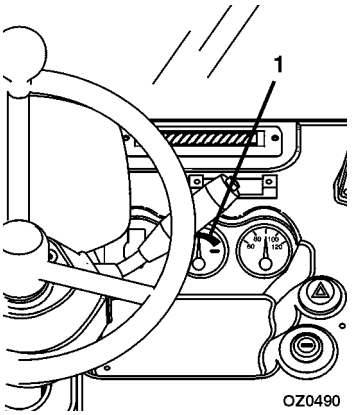
50 Hour Lubrication Schedule

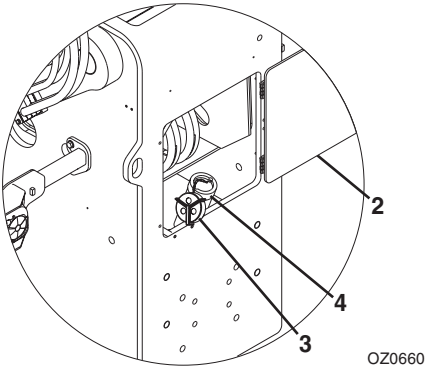
6.5 OPERATOR MAINTENANCE INSTRUCTIONS

Fuel System

A. Fuel Level Check

8 OW1150 OW0990





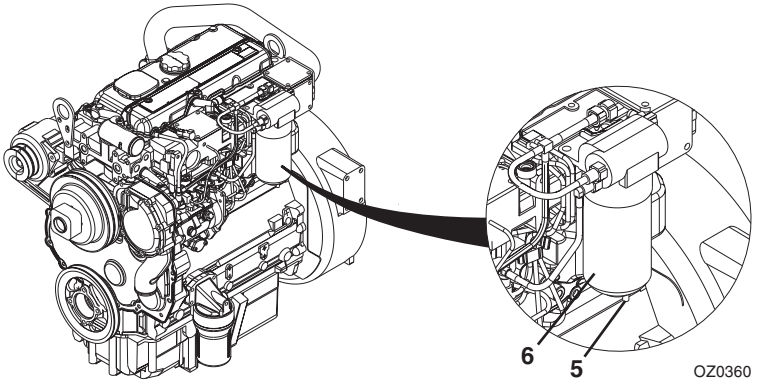
1. Check fuel gauge (**1**) located on instrument panel in cab.
2. If fuel is low, proceed to fuel source and perform *"Shut-Down Procedure"* on page 3-4.
3. Open the rear access door (**2**).
4. Turn fuel tank cap (**3**) and remove from filler neck (**4**). Add diesel fuel as needed. Replace fuel tank cap.
5. Close and secure the rear access door.

Note: *Replenish diesel fuel at end of each work shift to minimize condensation.*

B. Drain Fuel/Water Separator

50 OW0980

OW1000

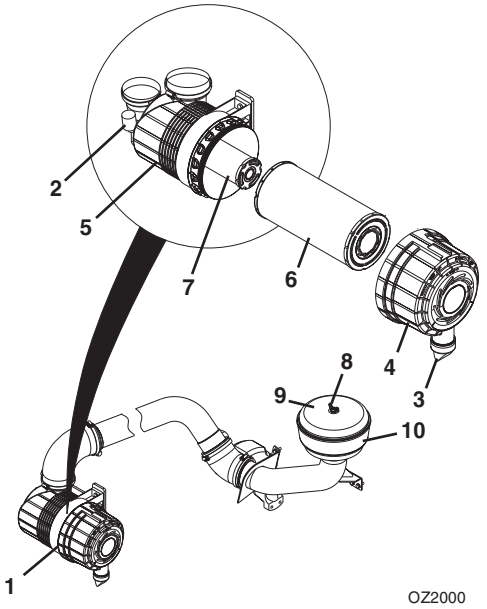


1. Perform *"Shut-Down Procedure"* on page 3-4.
2. Open the engine cover.
3. Loosen drain cock (**5**) on underside of fuel filter (**6**) and allow all water to drain into a glass until clear fuel is visible. Tighten drain cock.
4. Close and secure the engine cover.

A. Air Filter Restriction Indicator Check

8 OW1150

OW1010



1. Perform *"Shut-Down Procedure"* on page 3-4.
2. Open the engine cover.
3. Locate air cleaner (**1**) and check restriction indicator (**2**). If red band is visible, filter(s) must be replaced.
4. Remove dust from vacuator valve (**3**) by squeezing bottom of valve to allow loose particles to fall out.
5. Locate precleaner (**10**) and loosen wing nut (**8**) and remove cover (**9**) from precleaner canister.
6. Remove dust from bowl.
7. Replace bowl and cover.
8. Close and secure the engine cover.

Note: *Only remove canister cover to service the elements as restriction indicator indicates. Excessive access to check an element can lead to premature element failure.*

B. Element Change (as restriction indicator indicates)

1. Unlock air cleaner cover (**4**), turn counterclockwise and remove from air cleaner canister (**5**).
2. Remove outer primary element (**6**) and inspect for damage. Damaged elements should not be reused.
3. Thoroughly clean the interior of the air cleaner canister and vacuator valve.
4. Replace inner safety element (**7**) after every third primary element change. If replacing the inner safety element at this time, carefully slide the element out and replace with new element.
5. Slide the new primary element over the inner element making sure the sealing edge is flush with the base of the air cleaner.
6. Position air cleaner cover in place, turn clockwise and lock into position.
7. Depress button on restriction indicator to reset.

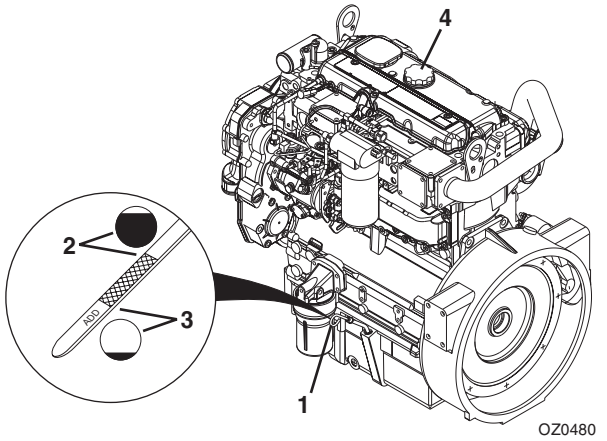
Note: *An inner safety element should never be washed or reused. Always install a new element.*

Engine Oil

A. Engine Oil Level Check

8 OW1150

OW1020



OZ0480

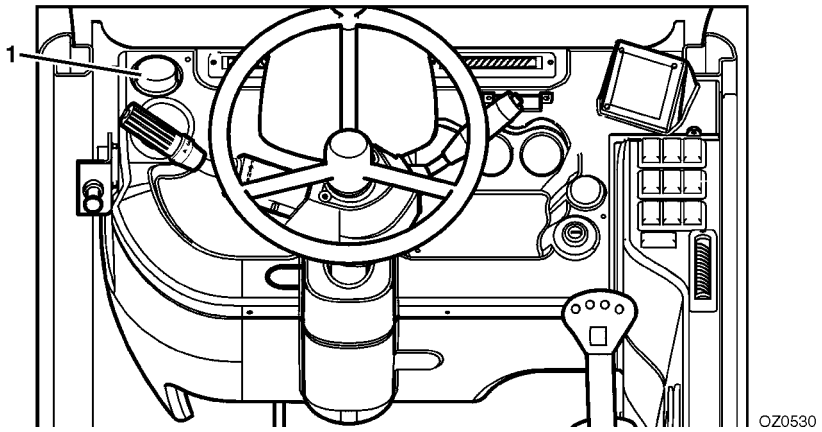
1. Perform *"Shut-Down Procedure"* on page 3-4.
2. Open the engine cover.
3. Remove dipstick (**1**) and check oil mark. The oil should be between the full (**2**) and add (**3**) marks within the crosshatched area of the dipstick.
4. If oil is low, remove oil fill cap (**4**) and add motor oil to bring oil up to the full mark in the crosshatch area.
5. Replace oil fill cap and dipstick.
6. Close and secure the engine cover.

Brake System

A. Brake Fluid Level Check

8 OW1150

OZ0540



1. Perform *"Shut-Down Procedure"* on page 3-4.
2. The brake fluid level should be between the MIN and MAX marks on the reservoir.
3. If brake fluid level is low, add fluid as needed (**1**).

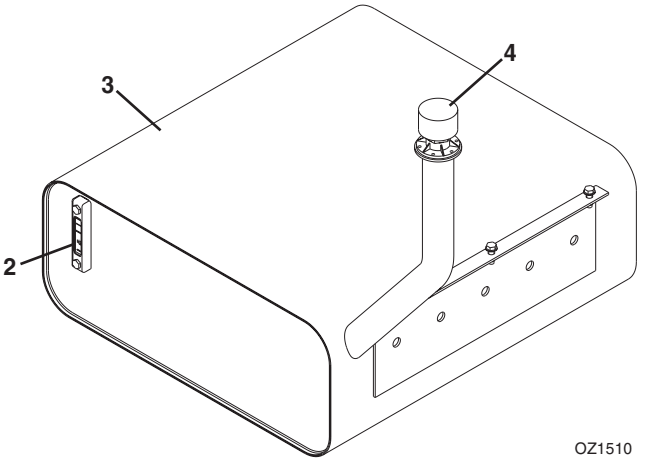
Note: *All other work on the brake system must be performed by qualified personnel.*

Hydraulic Oil

A. Hydraulic Oil Level Check

8 OW1150

OW1030



1. Be sure all cylinders are fully retracted and machine is level.
2. Perform *"Shut-Down Procedure"* on page 3-4.
3. Check level of hydraulic oil at the sight gauge (**2**) on the hydraulic tank (**3**). The oil level should be visible in the gauge window.
4. If hydraulic oil is low, remove oil fill cap (**4**) from filler neck. Add hydraulic fluid to bring oil up to the upper mark on the sight gauge.
5. Replace hydraulic oil fill cap.

Tires

A. Tire Air Pressure Check

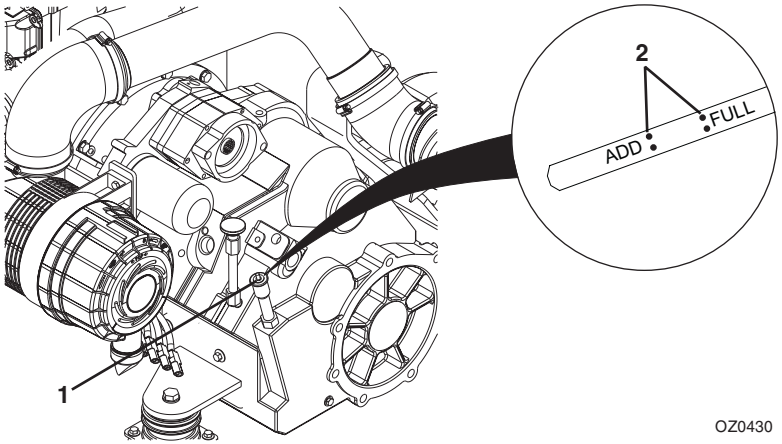
1. Perform *"Shut-Down Procedure"* on page 3-4.
2. Remove valve stem cap.
3. Check tire pressure using a good quality gauge.
4. Add air if required.
   16/70-20 ..... 3,5 bar (50 psi)
   405/70-20 ..... 3,5 bar (50 psi)
   405/70-24 ..... 4,0 bar (58 psi)
5. Replace valve stem cap.

Transmission Oil

A. Transmission Oil Level Check

8 OW1150

OW1050

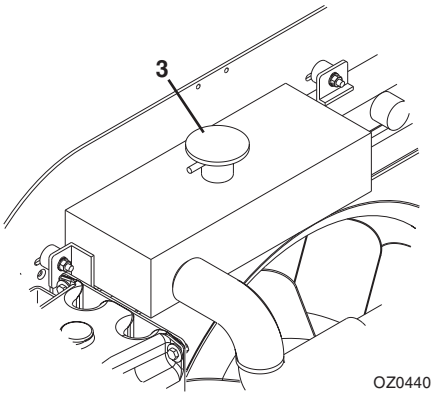


1. Apply park brake, shift transmission to "Neutral" and lower forks or attachment to the ground.
2. Check transmission oil level with engine at idle and oil at normal operating temperature.
3. Open the engine cover.
4. Remove the transmission dipstick (**1**) and check oil level. The oil level should be within the “FULL & ADD" marks (**2**).
5. If oil is low, add hydraulic fluid as needed.
6. Replace transmission dipstick.
7. Close and secure the engine cover.

Engine Cooling System

A. Engine Coolant Level Check

50 OW0980 OW1070



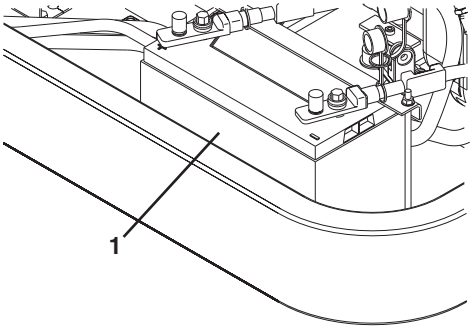
1. Perform *"Shut-Down Procedure"* on page 3-4.
2. Open the engine cover.
3. Check coolant level in radiator. When coolant is cool, remove cap. (**3**)
4. If coolant is low, add coolant (50/50 mixture of ethylene glycol and water) as required.
5. Replace radiator cap.
6. Close and secure the engine cover.

Battery

A. Battery Check

50 OW0980

OW1080



OZ0470

1. Perform *"Shut-Down Procedure"* on page 3-4.
2. Open the engine cover.
3. Wearing eye protection, visually inspect the battery (**1**). Check terminals for corrosion. Replace battery if it has a cracked, melted or damaged case.
4. Close and secure the engine cover.

SECTION 7 - ADDITIONAL CHECKS

7.1 LOAD MOMENT INDICATOR TEST

OW1150

OZ0840

The Load Moment Indicator (LMI) is intended to continuously monitor the forward stability of the telehandler. To check this feature, perform the following:

1. **Fully retract and level boom, with no load. Do not raise the boom during this test.**
2. Level frame using level in cab (if equipped).
3. Press the test button on the LMI display. This will cause all LEDs to flash on and an audible warning to sound. This indicates that the system is functioning properly. If the test gives a different result, the system is not functioning properly and the machine must be removed from service and repaired before continued operation.

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SECTION 8 - SPECIFICATIONS

8.1 PRODUCT SPECIFICATIONS

Fluid and Lubrication Capacities

Engine Crankcase Oil

Capacity with Filter Change ..... 8,5 liters (9 quarts)

Type of Oil ..... 15W-40 CE

Fuel Tank

Capacity ..... 140 liters (37 gallons)

Type of Fuel ..... U.S.A. #2 Diesel

Cooling System

System Capacity ..... 19,7 liters (20.8 quarts)

Type of Coolant ..... 50/50 ethylene glycol & water

Hydraulic System

3507, 3508, 3509, 4007, 4008 & 4009
System Capacity ..... 220 liters (58 gallons)

3512, 3513, 4012 & 4013
System Capacity ..... 235 liters (62 gallons)

Reservoir Capacity to Full Mark ..... 160 liters (42.3 gallons)

Type of Oil ..... Mobilfluid® 424 (ISO 46)

Transmission

Capacity with Filter Change ..... 12,9 liters (3.4 gallons)

Type of Fluid ..... Mobilfluid® 424 (ISO 46)

Transfer Case

Capacity ..... 1,4 liters (1.5 quarts)

Type of Fluid ..... Mobilfluid® 424 (ISO 46)

Axles

Differential Housing Capacity .....7,3 liters (7.8 quarts)

Wheel End Capacity .....1,4 liters (1.5 quarts)

Type of Fluid .....Mobilfluid® 424
Shell LS 90
Fuchs Renogear Oil LSA SAE 90
Fuchs Titan Gear 85W-90 LS
Castrol LSC SAE 90
Mobil Lube SHC LS 75W-90 (Full Synthetic)
Mobil 1 SAE 75W-90 LS (E.P.)

Tires

Air Pressure

3507, 3508, 3509, 4007, 4008 & 4009
16/70-20 .....3,5 bar (50 psi)
405/70-20 .....3,5 bar (50 psi)
405/70-24 .....4,0 bar (58 psi)
3512, 3513, 4012 & 4013
405/70-24 .....4,0 bar (58 psi)

Wheel Lug Nut

Torque..... 550-600 Nm (400-440 lb-ft)

Performance

Maximum Lift Capacity
- 3507, 3508, 3509, 3512 & 3513 ..... 3.500 kg (7,716 lb)
- 4007, 4008, 4009, 4012 & 4013 ..... 4.000 kg (8,818 lb)

Maximum Lift Height
- 3507 & 4007 ..... 7,30 m (23.95 ft)
- 3508 & 4008 ..... 7,90 m (25.91 ft)
- 3509 & 4009 ..... 9,00 m (29.53 ft)

Without Outriggers
- 3512 & 4012 ..... 11,40 m (37.40 ft)
- 3513 & 4013 ..... 12,90 m (42.32 ft)

On Outriggers
- 3512 & 4012 ..... 11,50 m (37.73 ft)
- 3513 & 4013 ..... 13,00 m (42.65 ft)

Capacity at Maximum Height
- 3507 ..... 2.000 kg (4,409 lb)
- 3508 & 3509 ..... 3.500 kg (7,716 lb)
- 4007 ..... 3.000 kg (6,613 lb)
- 4008 & 4009 ..... 4.000 kg (8,818 lb)

Without Outriggers
- 3512 & 4013 ..... 2.000 kg (4,409 lb)
- 3513 ..... 1.500 kg (3,306 lb)
- 4012 ..... 2.500 kg (5,511 lb)

On Outriggers
- 3512 ..... 3.000 kg (6,613 lb)
- 3513 ..... 3.500 kg (7,716 lb)
- 4012 & 4013 ..... 4.000 kg (8,818 lb)

Maximum Forward Reach
- 3507, 3508, 4007 & 4008 ..... 4,40 m (14.44 ft)
- 3509 & 4009 ..... 5,20 m (17.06 ft)
- 3512 & 4012 ..... 7,90 m (25.92 ft)
- 3513 & 4013 ..... 9,20 m (30.38 ft)

Capacity at Maximum Forward Reach
- 3507, 3508, 4007 & 4008 ..... 1.000 kg (2,205 lb)
- 3509 & 4009 ..... 1.200 kg (2,645 lb)

Without Outriggers
- 3512 ..... 0 kg (0 lb)
- 3513 ..... 200 kg (441 lb)
- 4012 & 4013 ..... 400 kg (882 lb)

On Outriggers
- 3512 ..... 750 kg (1,653 lb)
- 3513 ..... 1.000 kg (2,205 lb)
- 4012 ..... 1.400 kg (3,086 lb)
- 4013 ..... 1.300 kg (2,866 lb)

Reach at Maximum Height
- 3507 & 4007 ..... 1,50 m (4.92 ft)
- 3508 & 4008 ..... 0,60 m (1.97ft)
- 3509 ..... 0,75 m (2.46 ft)
- 3512 & 4012 ..... 1,20 m (3.93 ft)
- 3513 & 4013 ..... 1,85 m (6.07 ft)
- 4009 ..... 0,5 m (1.64 ft)

Break-Out Force with Standard Bucket ..... 70 kN (15,737 lb-ft)

Maximum Travel Speed
- 3 spd ..... 20 km/h (12.4 mph)
- 4 spd ..... 35 km/h (21.7 mph)

Towing Capacity ..... 5.000 kg (11,023 lb)

Carriage Rotation ..... 142 degrees

Frame Leveling (if applicable) ..... 9 degrees

Dimensions

Overall Height
- 3507, 3508, 3509, 4007, 4008 & 4009 ..... 2.410 mm (94.9 in)
- 3512, 3513, 4012 & 4013 ..... 2.450 mm (96.5 in)

Overall Width ..... 2.380 mm (93.7 in)

Cab Width ..... 890 mm (35 in)

Track Width ..... 1.920 mm (75.6 in)

Wheelbase ..... 2.850 mm (112.2 in)

Length at Front Wheels ..... 4.600 mm (181.1 in)

Length at Fork-Holder Plate
- 3507, 3508, 4007 & 4008 ..... 5.300 mm (208.7 in)
- 3509 & 4009 ..... 5.620 mm (221.3 in)
- 3512 & 4012 ..... 5.790 mm (228.0 in)
- 3513 & 4013 ..... 6.000 mm (236.2 in)

Ground Clearance ..... 420 mm (16.5 in)

Turning Radius Over Tires ..... 3.800 mm (149.6 in)

Turning Radius at Forks
- 3507, 3508, 4007 & 4008 ..... 4.750 mm (187.0 in)
- 3509 & 4009 ..... 5.020 mm (197.6 in)
- 3512 & 4012 ..... 5.170 mm (203.5 in)
- 3513 & 4013 ..... 5.350 mm (210.6 in)

Gross Vehicle Weight with Forks
- 3507 & 3508 ..... 7.400 kg (16,314 lb)
- 3509 ..... 8.600 kg (18,959 lb)
- 3512 ..... 10.000 kg (22,046 lb)
- 3513 ..... 11.000 kg (24,250 lb)
- 4007 & 4008 ..... 8.100 kg (17,857 lb)
- 4009 ..... 9.200 kg (20,282 lb)
- 4012 ..... 10.700 kg (23,589 lb)
- 4013 ..... 11.800 kg (26,015 lb)

Front Axle Weight (boom level and fully retracted)
- 3507 & 3508 ..... 3.500 kg (7,716 lb)
- 3509 ..... 5.000 kg (11,023 lb)
- 3512 ..... 5.350 kg (11,794 lb)
- 3513 ..... 5.400 kg (11,904 lb)
- 4007 & 4008 ..... 3.400 kg (7,495 lb)
- 4009 ..... 4.800 kg (10,582 lb)
- 4012 ..... 5.050 kg (11,133 lb)
- 4013 ..... 5.200 kg (11,464 lb)

Rear Axle Weight (boom level and fully retracted)

3507 & 3508	3.850 kg (8,487 lb)
3509	3.550 kg (7,826 lb)
3512	4.800 kg (10,582 lb)
3513 & 4012	5.700 kg (12,566 lb)
4007 & 4008	4.800 kg (10,582 lb)
4009	4.500 kg (9,920 lb)
4013	6.700 kg (14,770 lb)

Noise Emission Level

- The telehandler is approved under the applicable EC directives.
- The LWA sound power level is shown on the machine.
- To avoid any increase in noise emission, after maintenance and repair work, all panels and other sound absorbing materials must be replaced in their original condition. Do not modify the machine in such a manner as to increase noise emissions.

Telehandler Vibration

When the telehandler is used in the manner intended the vibration load values measured at the operator's seat are less than or equal to the test vibration values for the corresponding class of machinery per ISO 7096. The "azw" vibration acceleration values measured according to prEN 13059, therefore meet the requirements for whole body vibration protection in EN 474-1.

A

Additional Checks 7-1
Adjustable Truss Boom 4-21
Adjusting/Moving Forks 4-11
Air Cleaner 6-10
Air Conditioner Controls 2-28
Air Pressure 8-2
Anti Theft Device 2-15
Approved Attachments 4-1
Attachment Installation 4-7
  Hydraulic Operated 4-10
  Hydraulic Quick-Switch 4-9
  Mechanical Quick-Switch 4-8
Attachment Operation 4-11
Attachments 4-1
Axles 8-2

B

Battery Boosted Starting 3-3
Battery Check 6-18
Brake Fluid Level 6-13
Bucket 4-16

C

Cab Controls 2-8
Cab Emergency Exit 5-6
Capacities 8-1
Capacity 4-2
Capacity Chart
  Example 4-6
  Sample 4-4
Capacity Indicator Locations 4-3
Carriage w/ Forks 4-12
Chemical Hazards 1-14
Control and Indicator Console 2-27
Cooling System 8-1

D

Decals 2-4, 2-6
Dimensions 8-5
Disengaging the Load 3-7
Display Screen 2-12
Driving Hazards on Slopes 1-10

E

Electrical Hazards 1-2
Emergency Lowering of Boom 5-2
  Electronic Control Unit Failure 5-3
  Engine Failure 5-4
Emergency Procedures 5-1
Emergency Stop Switch 2-9
Engine 3-2
  Normal Operation 3-4
  Shut-Down 3-4
  Starting 3-2
Engine Coolant Level 6-17
Engine Crankcase Oil 8-1
Engine Oil Level 6-12

F

Fall Hazard 1-13
Fork Extension 4-18
Fork Hook 4-20
Fuel Level 6-8
Fuel Tank 8-1
Fuel/Water Separator 6-9

H

Hazard Classification System 1-1
Heater Controls 2-28
Hitch 4-1
Hood 2-34
Hydraulic Oil Level 6-14
Hydraulic System 8-1

I

Ignition 2-16
Instrument Panel 2-10

J

Joystick 2-22
Optional Controls 2-24
Standard Controls 2-22

L

Leveling Procedure 3-6
Lifting Personnel 1-8
Light Control Lever 2-20
Load Falling Hazard 1-7
Load Moment Indicator 2-26
Load Moment Indicator Test 7-1
Lubrication and Maintenance 6-1
Lubrication Schedules 6-6
50 Hour 6-7
8 Hour 6-6

M

Maintenance 6-2
Mechanical Hitch 4-22, 4-23
Mirrors 2-32

N

Noise Emission 8-6

O

Operating with a Load 3-5
Operational Checks 3-1
Operator Cab 2-7
Operator Maintenance Instructions 6-8
Operator Seat 2-30

P

Park Brake 2-17
Parking Procedure 2-17
Performance 8-3
Picking Up a Load 3-5
Pinch Points and Crush Hazards 1-11
Placing the Load 3-7
Pre-Operation and Controls 2-1
Pre-Operation Checks 2-1

R

Restriction Indicator 6-10
Road Operation 3-8

S

Safety Decals 2-4
Safety Practices 1-1
Safety Signal Words 1-1
Seat Belt 2-31
Service and Maintenance Schedules 6-3
1000 Hour 6-5
1500 Hour 6-5
1st 50 Hour 6-3
250 Hour 6-4
50 Hour 6-4
500 Hour 6-4
8 Hour 6-3
Shut-Down Procedure 3-4
Side Shift Carriage 4-14
Specifications 8-1
Steer Modes 2-29
Steering Column Adjuster 2-21

T

Telehandler Vibration 8-6
Tip Over Hazard 1-3
Tire Pressure 6-15
Tires 8-2
Towing 5-1
Transfer Case 8-1
Transmission 8-1
Transmission Control 2-18
Transmission Oil Level 6-16
Transport 3-9
Transporting The Load 3-6
Travel Hazard 1-6
Truss Boom 4-13
Turn Signal Control Lever 2-20

W

Walk-Around Inspection 2-2
Warm-Up 3-1
Wheel Lug Nut..... 8-2
Windows..... 2-32
Wiper Control 2-20

JLG Industries, Inc.

TRANSFER OF OWNERSHIP

To: JLG, Gradall, Lull and SkyTrak product owner:

If you now own but ARE NOT the original purchaser of the product covered by this manual, we would like to know who you are. For the purpose of receiving safety-related bulletins, it is very important to keep JLG Industries, Inc. updated with the current ownership of all JLG products. JLG maintains owner information for each JLG product and uses this information in cases where owner notification is necessary.

Please use this form to provide JLG with updated information with regard to the current ownership of JLG products. Please return completed form to the JLG Product Safety & Reliability Department via facsimile or mail to address as specified below.

Thank You,
Product Safety & Reliability Department
JLG Industries, Inc.
1 JLG Drive
McConnellsburg, PA 17233-9533
USA
Telephone: (717) 485-5161
Fax: (717) 485-6573

NOTE: Leased or rented units should not be included on this form.

Mfg. Model: _____

Serial Number: _____

Previous Owner: _____

Address: _____

_____

Country: _____ **Telephone: (_____)** _____

Date of Transfer: _____

Current Owner: _____

Address: _____

_____

Country: _____ **Telephone: (_____)** _____

Who in your organization should we notify?

Name: _____

Title: _____

Corporate Office
JLG Industries, Inc.
1 JLG Drive
McConnellsburg PA. 17233-9533
USA
Phone: (717) 485-5161
Customer Support Toll Free: (877) 554-5438
Fax: (717) 485-6417

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Bei Bremen
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Ul. Krolewska
00-060 Warsawa
Poland
Phone: (48) 91 4320 245
Fax: (48) 91 4358 200

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JLG Industries (Pty) Ltd.
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